EXPLORING THE RELATIONSHIP BETWEEN ACT VARIABLES AND SLEEP DISORDERS IN PREDICTING SUICIDAL IDEATION

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1621657

MSc Psychology (Conversion)

PS7112 Research Dissertation

2017/2018

University of Chester

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Word Count: 10,580

DECLARATION

This work is original and has not been submitted in relation to any other degree or qualification.

Signed  (Venetsiana Fanioudaki)

Date: 25/09/2018

Acknowledgments

I am using this opportunity to express my deepest appreciation to everyone who supported me throughout the course of this Dissertation project. First of all, a special gratitude I give to my supervisor Dr Kevin Hochard, whose contribution in stimulating encouragement, support and suggestions as well as in the successful completion of this project was invaluable.

I would also like to acknowledge with much appreciation the crucial role of the participants of the study who helped in yielding important findings which can contribute to the existing literature.

Finally, I would like to give my warm thanks to all of the staff of the University of Chester who were very helpful and supportive during the completion of the research.

University of Chester

Department of Psychology

Research Module Meeting Log 2017/2018

Name: Venetsiana Fanioudaki

Degree Programme: MSc Psychology (Conversion)

Supervisor: Dr Kevin Hochard

Date	Supervisors present	Topics discussed
22/01/2018	Dr Kevin Hochard	Ideas for potential research topics.
02/02/2018	Dr Kevin Hochard	Discussion about the topic area and about completing application for ethical Approval.
21/02/2018	Dr Kevin Hochard	Discussion about Participants, Hypotheses and Methods Section.
07/03/2018	Dr Kevin Hochard	Final discussion for Ethical Approval.
20/03/2018	Dr Kevin Hochard	Discussion about introduction part of the dissertation and general plan for the dissertation.

20/04/2018	Dr Kevin Hochard	Discussion – completing ethics amendment form.
08/05/2018	Dr Kevin Hochard	Discussion after receiving full ethical approval. Discussion about writing dissertation. Dissertation Schedule.
18/07/2018	Dr Kevin Hochard	Discussion about data analysis and methods section – will use linear regression analyses.
22/08/2018	Dr Kevin Hochard	End of data collection: discussion about findings, difficulties encountered, data analysis, and ideas for future studies.

SUPERVISOR'S SIGNATURE _____ DATE: _____

STUDENT'S SIGNATURE _____ DATE: _____

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Abstract

Suicidal Ideation (SI) is undoubtedly a major risk factor for suicide which is a fundamental public health phenomenon as every year in all regions of the world nearly one million individuals end their own lives. Sleep disorders, such as insomnia and nightmares are risk factors of SI and ACT has been shown to decrease SI. The study aimed to investigate the moderating role of ACT components (measured with the AAQ-II and CompACT) in the relationship between sleep disorders (insomnia and nightmares) and suicidal ideation. The study employed correlational quantitative analysis and conducted four hierarchical linear regressions. Findings from the e-survey (n= 274) showed that sleep disorders did not significantly predict SI beyond the effects of anxiety, stress and depression. However, ACT components decreased SI scores after controlling for depression, anxiety, stress, insomnia and nightmares (β = -.31, p < .001). In addition, ACT variables (measured with the AAQ-II) moderated the relationship between insomnia, but no nightmares, and SI by decreasing SI scores (β= -.09, p < .05). Taken together, these findings provide support for the protective role of psychological flexibility against SI and the effectiveness of ACT components in decreasing suicidal thoughts and behaviors in individuals with high scores of insomnia symptoms. The study suggests that an ACT based intervention could benefit individuals with insomnia from developing SI. Further evaluation of the relationship between sleep disorders and SI and possible mediators is warranted.

Introduction

Suicide is a fundamental public health phenomenon as every year in all regions of the world nearly one million individuals end their own lives while even a higher number attempts suicide (World Health Organization, 2018). In 2006, suicide was the eleventh leading cause of death in USA (Nadorff, Nazem & Fiske, 2011). In 2014, it was found to be the fifteenth global cause of death in all ages (World Health Organization, 2014) and in the US the suicide rate was 13.4 deaths per 100,000 people (Centers for Disease Control and Prevention, 2015). In 2015, it was estimated that it was the second global cause of death in individuals aged 15-29 with the European Region having the highest suicide rates (World Health Organization, 2018). Specifically, in the UK in 2014 the suicide rate was 10.8 deaths per 100,000 individuals which increased by 1% in 2015. More specifically, Northern Ireland showed the highest and England the lowest suicide rates across all UK nations (Suicide Statistics Report, 2017).

Suicide is a very complicated process progressing in three stages, commencing with suicidal ideation (thoughts about suicide) followed by suicide planning (suicidal thoughts turn to making a specific plan for suicide) and finally suicide attempt (suicidal individuals make the decision to attempt suicide) (Bashardoost & Ashoori, 2016). Suicide is not a meaningless or accidental act, but it is perceived as a preferable solution in order to free the suicidal individual from difficult situations which cause psychological pain and distress, fears and worries (Bashardoost & Ashoori, 2016). A recent cross-national study, which consisted of 84.850 adults, showed that although the prevalence of suicidal behavior varies across different countries, the risk factors for suicidal behavior are significantly consistent worldwide (Nock et al., 2008). Indisputably, the strongest risk factors for suicide are suicidal ideation, plans and attempts (Klonsky, May & Saffer, 2016; Lee et al., 2010; Nock et al., 2008; Normala et al., 2017; WHO, 2018). Specifically, a large epidemiological cross-sectional study which consisted of 5877 participants showed that 34% of suicidal ideators made a suicide plan, 72% of those who had

made a plan attempted suicide and 26% of suicidal ideators made an unplanned attempt (Kessler, Borges & Walters, 1999).

Suicidal Ideation (SI)

SI refers to the beliefs and thoughts regarding a specific way or a plan to attempt suicide (Bashardoost & Ashoori, 2016). Individuals who suffer from suicidal ideation, feel that they are not able to deal with an overwhelming situation any more, which in turn increases worthlessness or hopelessness and thus suicide (Nepon, Belik, Bolton & Sareen, 2010).

Lee et al. (2010) showed that the majority of suicides occur with the first suicide attempt. Nock et al. (2008) indicated that across 17 countries, 60% of suicide attempts occurred through the first year of suicide ideation onset. This percentage is of high significance considering the fact that only in 2010 in the United States, 8.7 million people or 3% of the U.S. population reported to have suicidal thoughts (Han, McKeon & Gfroerer, 2014). In addition, Park, Hong, Jon, Hong and Jung (2017) showed that for each one unit increase in SI, the odds ratio for suicide attempt increases by a factor of 4.408 compared to no suicide attempt, that is approximately 80% higher probability for suicide attempt. Moreover, in a recent study which consisted of 206 individuals aged 9-29, only 0.8% of the participants who had attempted suicide declared the absence of previous SI (Sveticic & De Leo, 2012). However, this information can only be obtained by people who have survived their first attempt and not for those who died on their first attempt. Nevertheless, suicide attempts have been shown to predict complete suicide, since more than 80% of completed suicides occur within a year after the first suicide attempt (Bostwick, Pabbati, Geske & McKean, 2016). Thus, given the magnitude of this phenomenon, identifying risk factors for SI is of crucial significance (Lee et al., 2010).

Mental health factors affecting SI

Many healthy individuals may report SI at some point throughout their lives. Research has shown that suicidality may occur among individuals without any diagnostic conditions (Chiles & Strosahl, 2008). Although several factors may affect SI, a strong body of literature in all over the world has shown that SI is more common among people who suffer from mental disorders, particularly anxiety, depression and stress (Bashardoost & Ashoori, 2016; Gliatto & Rai, 1999; Gould, Greenberg, Velting & Shaffer 2003; Ibrahim, Amit & Suen, 2014; Izadinia, Amiri, Ghorban Jahromi & Hamidi, 2010; Nepon et al., 2010; O'Neil Rodriguez & Kendall, 2014; WHO, 2018). In addition, the majority of individuals who have had successful suicides has been diagnosed as suffering at the same time of mental disorders, such as anti-social behaviors, anxiety or mood disorders (Gould et al., 2003; Nock et al., 2008; Gliatto & Rai, 1999; O'Neil Rodriguez & Kendall, 2014). In particular, Cavanagh, Carson, Sharpe and Lawrie (2003) in their systematic review which examined the results of psychological autopsy studies, found that up to 95% of suicides have been attempted by people who suffer from one or more psychological disorders. In addition, O'Neil Rodriguez and Kendall (2014) indicated that nearly 60% of anxiety disordered individuals were found to have suicidal thoughts whereas Nepon et al. (2010) found that 66.9 % of those who attempted suicide suffered from depression.

Moreover, recent studies have shown that depression, anxiety (Bantjes, Kagee, McGowan & Steel, 2016; Izadinia et al., 2010; Lee et al., 2010; Nguyen, Dedding, Pham, Wright & Bunders, 2013; O'Neil Rodriguez & Kendall, 2014) and stress are significant predictors of SI (Izadinia et al.,2010; Normala et al., 2017), with depression being the most important contributing factor in predicting SI (Brown, Beck, Steer & Grisham, 2000; Ibrahim et al., 2014; Izadinia et al., 2010). Research suggests that depression affects individuals' social relationships and daily performance by making them feel defeated, worthless or that they lack control over situations, which in turn increases suicidal thoughts and attempts (Ibrahim et al., 2014; Izadinia

et al., 2010; Levine, 2008). More specifically, according to the Integrated Motivational-Volitional Model of Suicidal Behavior (O'Connor, 2011), these feelings of defeat, worthlessness or humiliation trigger feelings of entrapment which in turn increase suicidal ideation and intention and, in the end, increase suicidal behavior. The transition among these stages is determined and facilitated or obstructed by specific moderators, such as social problem-solving, impulsivity, capability, planning, attitudes, social support, future thoughts etc. Furthermore, research has shown that the risk of suicide increases when depression, especially severe depression is accompanied with anxiety (Goldberg & Fawcett, 2012). However, individuals with sub threshold anxiety and depression have also reported an increased risk for SI (Balazs et al., 2013).

Sleep disorders, nightmares and insomnia affecting SI

Although mental health disorders, such as stress, anxiety and depression are among the most prominent psychological risk factors associated with SI (Ibrahim et al., 2014; Izadinia et al., 2010; Mihandoost, 2013; Normala et al., 2017; O'Neil Rodriguez & Kendall, 2014), several other factors may also increase SI. Sleep disturbances such as nightmares and insomnia have shown a unique relationship to suicidal thoughts and behavior (Drapeau & Nadorff, 2017).

According to the DSM-IV Diagnostic Criteria for Primary Insomnia are the following; A) complaints about sleep quality or quantity, difficulties initiating and maintaining sleep or non-restorative sleep, that is even though sleep duration is normal there is a feeling that sleep is not refreshing. These symptoms persist for at least one month. B) Impairment in daily functioning or clinically significant distress caused by sleep disturbance. C) These symptoms are not reported exclusively during the course of mental disorders, breathing-related sleep disorders, narcolepsy or parasomnia. D) The sleep disturbance is not the direct outcome of a general medical condition or medication and drug abuse (Eddy, Gordon & Walbroehl, 1999).

A strong body of literature including psychological autopsy studies, retrospective and prospective studies, has found positive associations between insomnia and SI or suicidal behavior across all ages and multiple countries (Agargun, Kara & Solmaz, 1997; Bernert & Joiner, 2007; Bernert, Joiner, Cukrowicz, Schmidt & Krakow, 2005; Cukrowicz et al., 2006; Drapeau & Nadorff, 2017; McCall & Black, 2013; Nadorff et al., 2011; Richardson et al., 2017). Bernet and Joiner (2005) suggested that poor sleep quality affected by insomnia or nightmares, may interrupt within-sleep mood regulation processes, which can affect negatively individuals' psychopathology and thus increase suicidal thoughts.

Sleep problems like insomnia, have been shown to be common symptoms of several mental disorders, such as generalized anxiety disorders, depression and PTSD (American Psychiatric Association, 2013). Specifically, some research has shown that 40% of individuals affected by insomnia have a coexisting mental disorder (McCall, 2001; Roth, 2007) and that factors such as depression affect indirectly the relationship between insomnia and SI (Allan, Conner, Pigeon, Gros, Salami & Stecker, 2017; Bryan et al., 2015; Kato, 2014).

However, a strong body of literature has shown that the link between insomnia and SI persists even when controlling for very strong predictors of SI, such as depression, anxiety or other mental disorders (Goldstein, Bridge & Brent, 2008; Nadorff, Anestis, Nazem, Harris & Winer, 2014; Pigeon, Pinquart & Conner, 2012; Ribeiro et al., 2012; Wong, Brower & Zucker, 2011). In addition, it has been indicated that insomnia severity increases the likelihood of SI and depression as well (McCall et al., 2010; Richardson et al., 2017). In fact, it has been found that individuals who had insomnia and reported no symptoms of depression at baseline, had increased risk of developing depression and SI the following years (Suh, Kim, Yang, Cho, Lee & Shin, 2013). Therefore, sleep disorders may increase the probability of developing depression which in turn may increase the risk of SI (Littlewood, Kyle, Pratt, Peters & Gooding, 2017).

A recent systematic review by Littlewood et at. (2017) showed that perceived burdensomeness and thwarted belongingness or social isolation may trigger the desire for suicide attempt and thus, may partially explain the relationship between insomnia and SI. For example, individuals with insomnia may feel that their friends and family do not understand them which may make them feel isolated. They may then avoid engaging in social activities (Henry, Rosenthal, Dedrick & Taylor, 2013) and stop seeking for social support, which in turn may lead to hopelessness and in the end produce SI (Bozzay, Karver & Verona, 2016).

The presence of nightmares, which is a term defined as "the experience of a dysphoric dream during rapid eye movement (REM) sleep, characterized by a narrative (albeit a disjointed narrative), high visual impact, and good recall upon awakening" (McCall & Black, 2013, p. 2), has also been linked to increased risk for SI (Hochard, 2014; Hochard, Heym & Townsend, 2017; Wong et al., 2011). In addition, the presence of nightmares has been indicated as an independent predictor of SI (Hochard, 2014; Nadorff et al., 2011; Pigeon et al., 2012; Susánszky, Hajnal & Kopp, 2011; Wong et al., 2011) even after controlling for depression and anxiety. Research which has investigated both the effect of nightmares and insomnia on suicide has shown that the presence of nightmares can have similar or even more impact than insomnia on the prediction of suicide (Cukrowicz et al., 2006; Li, Lam, Chan, Yu & Wing, 2012; Sjostrom, Hetta & Waern, 2009). In fact, Nadorff et al. (2011) found that nightmares and not insomnia were associated with SI, when controlling for depression and anxiety. Therefore, having nightmares may increase the risk of experiencing SI, regardless of any other coexisting mental disorders and depressive symptoms (Nadorff et al., 2014). Research has shown that different psychosocial factors and putative mechanisms mediate the relationship between insomnia to SI and nightmares to SI (Littlewood et al., 2017). For example, in contrast to insomnia, perceived burdensomeness and thwarted belongingness have not been found to mediate the relationship between nightmares and SI. However, a four-step mediational pathway has been suggested

whereby nightmares may lead to the perception of defeat, entrapment and hopelessness and finally increase the risk for developing SI (Littlewood, Gooding, Panagioti, et al., 2016).

In addition, nightmares may add more distress in individuals who already suffer from mental disorders, leading thus to higher risk for suicidal thoughts (Nadorff et al., 2011). Stressful situations can affect individuals' anxiety and mental health increasing thus the emergence of suicidal thoughts and attempts (Izadinia et al., 2010). Inability to deal with stressful life events (Capron, Cougle, Ribeiro, Joiner & Schmidt, 2012), such as relationship break-up, financial problems or chronic illness, as well as violence, loss, disaster, a sense of isolation and abuse may lead individuals to feel that they are not supported and that they are hopeless (Ibrahim et al., 2014; Mihandoost, 2013). The interaction of such stressful events may make the person less able to cope with stress management and increase thus, the potential of suicidal thoughts (Lee & Jung, 2006).

Acceptance and Commitment Therapy

Acceptance and Commitment Therapy (ACT) is a 'third-wave' behavioral therapy which "applies acceptance and mindfulness processes, and commitment and behavior change processes, to the creation of psychological flexibility" (Hayes, Pistorello & Biglan, 2008, p.1; Ducasse et al., 2014; Murrell & Scherbath, 2006; Murrell, Al-Jabari, Moyer, Novamo & Connally, 2014; Walser et al., 2015). ACT is based on the Relational Frame Theory, a substantial psychological theory of human language which seeks to identify the ways in which language can dominate individuals' lives and promote 'suffering'. The processes of experiential avoidance, that is the tendency to change unwanted thoughts and emotions and of cognitive fusion, which occurs when these thoughts can influence human behavior in ineffective ways, can make 'suffering' prolonged and lead to psychological inflexibility. ACT targets these processes by increasing mindful awareness and experiential acceptance (Harris, 2009; Hayes et al., 2008; Hayes et al., 2011; Walser et al., 2015) which in turn increase psychological

flexibility. Psychological flexibility refers to the ability to behave in consistency with individuals' identified values and the ability to be totally connected with the present moment (Hayes et al., 2011).

Specifically, according to the ACT model, it is the response to thoughts, such as suicidal thoughts, and to emotions, such as pain and sadness, that can actually lead to life difficulties. That is, huge efforts to control these emotions and thoughts may affect individuals' psychopathology. During ACT, individuals are taught to observe these emotions and thoughts as events which are not problematic and accept them rather than trying to escape from them, control or change them, while they are also encouraged to make life-enhancing choices and changes in line with their personal values. This approach can disrupt the avoidance of negative thoughts which in turn, may allow for a healthier response to stressful events and decrease the need to escape from them in a harmful way, such as attempting suicide (Walser et al., 2015). According to ACT, mindful living is the desired outcome. That is, regardless of the number of psychological symptoms, as long as individuals respond to them with mindfulness, they can achieve a better quality of life. Hence, ACT's goal is not to decrease the psychological symptoms but to change the relationship with them (Harris, 2009).

The effect of Acceptance and Commitment Therapy on mental disorders

Several studies have shown the effectiveness of ACT with regards to stress reduction (Bond & Bunce, 2000), depression and anxiety disorders (Blackledge & Hayes, 2006; Hayes et al., 2008; Roemer, Orsillo & Salters-Pedneault, 2008; Walser, Karlin, Trockel, Mazina & Taylor 2013), self-harm, chronic diseases (Gregg, Callaghan & Hayes, 2007), pain (Dahl, Wilson & Nilsson, 2004), quality of life improvement and functioning difficulties (Branstetter, Wilson, Hildebrant & Mutch, 2004; Hayes et al., 2008). A recent study consisting of nearly 1000 participants showed that participants with higher mindfulness scores reported greater reductions in depression levels over time (Walser et al., 2015). Landy, Schneider and Arch (2015) as well

as a systematic review which analysed 38 studies regarding anxiety treatment (Swain, Hancock, Hainsworth & Bowman, 2013) have found preliminary support for the efficacy of ACT in anxiety disorders while they suggested it as an alternative treatment to Cognitive Behavioral Therapy.

The effect of Acceptance and Commitment Therapy on Insomnia and Nightmares

Given that ACT has been proven to be an effective treatment in decreasing symptoms of depression and anxiety and knowing the association between these mental disorders, insomnia and general sleep disorders, it can be assumed that ACT could be beneficial in insomnia and sleep disorders too (Pelkonen & Puha, 2013). Although Cognitive Behavioral Treatment (CBT) has been indicated as a first-line treatment for insomnia (Morin et al., 2006), there is accumulating evidence suggesting that ACT or in general therapies which utilize acceptance-based and mindfulness techniques are effective in decreasing insomnia symptoms and in improving sleep satisfaction (Baik, 2015; Kato, 2016a; Lundh, 2005; Ong, Ulmer & Manber, 2012). Dalrymple, Fiorentino, Politi, and Posner's (2010) showed that an individual who was not responsive to CBT-I, experienced decreased insomnia symptoms after being treated with ACT. However, this was a case study, so further evidence is needed from well-designed research studies to examine this relationship. Hertenstein et al. (2014) who examined the effectiveness of ACT in individuals with primary insomnia who did not or partially respond to CBT, showed that sleep-related avoidance behavior and quality of life improved after a 6-session group intervention. Hertenstein et al. (2014) suggested ACT as an adjunctive treatment for primary insomnia. However, the study lacked a control group and examined a small sample of 11 individuals. Finally, although having a small sample size, a randomized controlled trial implementing a behavioral ACT intervention showed reduced symptoms of insomnia for the treatment group (Baik, 2015).

With regards to nightmares, there is no existing research linking ACT to nightmares' reduction. However, evidence suggests that pre-sleep anxiety and stress are highly associated

with nightmares (Antunes-Alves & De Koninc, 2012) and that nightmares are uncontrollable and distressing and may increase hopelessness and lower distress tolerance. Given that ACT and general mindfulness-based techniques can address these parameters (Nadorff et al., 2011; Shallcross, Troy, Boland & Mauss, 2010), an interaction between ACT and nightmares could be possible. In addition, it has been indicated that negative affect mediates the relationship between nightmares and SI (Hochard, Heym & Townsend, 2015). As such, accepting negative experiences via ACT would protect individuals from developing depressive or stressful symptoms or from experiencing negative affect (Shallcross et al., 2010) which in turn could affect the relationship between nightmares and SI.

Acceptance and Commitment Therapy and SI

As already mentioned, individuals who think about suicide tend to feel worthless or hopeless and that they are not able to tolerate their experience. Suicidal thoughts make them feel that suffering would end and that they would be relieved from the distress related to their experience (Chiles & Strosahl, 2005). The literature supports that individuals with suicidal behavior try to suppress or escape from suicidal mental images which in turn enhances their frequency and intensity (Pettit et al., 2009). According to the Experiential Avoidance Model, experiential avoidance refers to the tendency to avoid or escape from unwanted thoughts, memories or emotions (Chapman, Gratz & Brown, 2006) and has been found to be a predictor of SI (Chiles & Strosah, 2008). Baumeister (1990) indicated that most of the suicide notes describe an effort escaping from self and unwanted emotional experience. Therefore, SI is an expression of an emotionally avoidant coping strategy (Baumeister, 1990; Hayes et al., 2008).

ACT targets and reduces experiential avoidance with the use of several processes which aim at decreasing the continuous effort to escape from emotional pain, such as SI (Murrell et al., 2014; Walser et al., 2015). Walser et al. (2015) who investigated the effect of ACT on veteran patients, showed a 20,5 % increase in the number of patients with no SI during ACT treatment.

In addition, Ducasse et al. (2014) suggested that ACT is a promising treatment for individuals with high risk for suicidality and supported that it can decrease the frequency and intensity of SI by increasing acceptance skills and the meaning of existence as well as by having an impact on suicidal risk factors, such as quality of life, hopelessness, helplessness and psychological pain. More importantly, a very recent and the first RCT which investigated the effect of ACT on suicidal behavior and not just ideation showed that ACT decreased suicidal behaviour in individuals who suffered from suicidal behavior disorder and it was suggested as an adjunctive strategy in suicide prevention programs (Ducasse et al., 2018). Ducasse's conclusions regarding the preventive role of ACT on SI have been supported by the results of two more case reports (Luoma & Villatte, 2012). In general, mindfulness techniques have shown to be efficacious in suicidal individuals, as they teach them to observe their experience with kindness and equanimity and view themselves with compassion (Luoma & Villate, 2012). Finally, Murell et al (2014) and Hayes et al. (2008) suggested that ACT could be an appropriate preventative intervention in reducing suicide risk as well as symptoms leading to suicidality, such as depression and self-harm.

Statement of the problem and gaps in the literature

All in all, there are multiple pathways which are correlated to SI, with anxiety, stress disorders and depression (Ibrahim et al., 2014; Mihandoost, 2013; Normala et al., 2017; O'Neil Rodriguez & Kendall, 2014) affecting significantly SI development. More importantly, insomnia (McCall et al., 2010; Pigeon et al., 2012; Ribeiro et al., 2012; Wong et al., 2011) and nightmares (Bernert & Joiner, 2007; Cukrowicz et al., 2006; Hochard, 2014; Nadorff et al., 2011; Susánszky et al., 2011; Wong et al., 2011) have been indicated as significant predictors of SI even after controlling for depression and anxiety.

Empirical evidence has suggested the effectiveness of ACT in a range of mental and sleep disorders (Blackledge & Hayes, 2006; Branstetter et al., 2004; Hayes et al., 2008; Hayes,

Luoma, Bond, Masuda & Lillis,, 2006; Landy et al., 2015; Roemer et al., 2008; Swain et al., 2013) which lead to SI and a growing body of evidence supports the effectiveness of ACT on suicidal symptoms, such as self-harm and depression (Murrell et al., 2014). Although there is some empirical evidence for the effectiveness of ACT on SI (Ducasse et al., 2014; Ducasse et al., 2018; Luoma & Villatte, 2012; Walser et al., 2015), more research is needed to support these findings (Tighe, Nicholas, Shand & Christensen, 2018). In addition, to the knowledge of the researcher there is no existing empirical research on the association between nightmares and ACT components. However, the literature suggests that ACT is a promising intervention approach for insomnia and sleep disorders while it may also add “unique and useful treatment components to existing interventions” (Baik, 2015, p.3). Lastly, there is no existing evidence regarding the protective role of ACT in individuals with insomnia or nightmares on reducing scores of SI.

Rationale of the project

SI is undoubtedly a major risk factor for suicide (Han et al., 2014; Jobes, 2006; Klonsky et al., 2016; Lee et al., 2010; Nock et al., 2008; Normala et al., 2017; WHO, 2018) which is a fundamental public health phenomenon as every year in all regions of the world nearly one million individuals end their own lives (WHO, 2018). Given the aforementioned concerns regarding the link between SI and sleep disorders, the first aim of the current study was to investigate this relationship since literature suggests that sleep disorders and especially nightmares are strong predictors of SI even after controlling for depression. Additionally, the current research aimed to examine the effectiveness of ACT components on SI since more research is needed given that ACT has been suggested as a new promising treatment for individuals with SI and high risk for suicidality (Ducasse et al., 2014; Ducasse et al., 2018; Luoma & Villatte, 2012; Murrell et al., 2014) and as a preventative intervention in altering suicidal thoughts and symptoms (Hayes et al., 2008). The third aim of the study was to provide

the first evidence on the association between nightmares and ACT components. Finally, the main purpose of this research was to examine the interaction between ACT variables and sleep disorders in predicting suicidal ideation.

There are some important benefits in this study. By examining the relationship between ACT variables and SI as well as between stress, anxiety, depression, insomnia, nightmares and SI, then appropriate interventions using the resulting ACT components can be designed and implemented in order to reduce SI symptoms and its progression to suicidal attempts and suicide. Given the strong link between SI and suicide attempt, intervening early and designing effective suicide prevention strategies is of crucial importance (Littlewood et al., 2017).

Hypotheses of the research

Based on the aims of the study four research hypotheses were generated:

H_1) Individuals with high levels in anxiety, stress and depression will have higher risk for SI.

H_2) High levels of insomnia and nightmares will significantly predict higher scores of SI beyond the effects of anxiety, stress and depression.

H_3) ACT components will significantly predict lower scores of SI beyond the effects of anxiety, stress, depression, insomnia and nightmares.

H_4) ACT components will moderate the relationship between 1) insomnia and 2) nightmares and SI beyond the effects of anxiety, stress and depression.

Method

Sample and Participants

The participants of this study were individuals aged over 16, since they would be able to consent for themselves (Consent & Participant Information Sheet Preparation Guidance, 2014). The initial number of the sample size was 276 participants. However, 2 of them left the questionnaire incomplete (i.e. they did not provide data on the DV measure) and were excluded from the analysis. The final total number of the sample size in the study was 274 participants. The sample had a greater proportion of female (62.8%) than male participants. The mean age of the participants was (M= 26.2 years old, SD=8.07), ranging between 16-59. The sample identified 38% as high school graduates, 33.2% with an undergraduate degree, 22.3% as master graduates, 2.6% with GCSE and 0.7% on a doctorate level. However, 3.3% of the sample did not provide data on this variable. Finally, the majority of the participants (82.8%) reported coming from a white ethnic group or background.

The inclusion criteria were, people aged over 16 and people who could speak English fluently in order to be able to complete the questionnaire. There were no exclusion criteria. Students using the SONA system were awarded research credits in exchange for their participation.

The sampling method is general population convenience sample, which was chosen since it is a fast and cost-effective method (Acharya, Prakash, Saxena & Nigam, 2013). Although it is considered to be a non-probability method, research supports that convenience sampling can yield similar results to random sampling which can be properly generalized to the population at large (Hultsch, MacDonald, Hunter, Maitland & Dixon, 2002).

Design

This is an epidemiological study which employed correlational quantitative analysis. The independent variables were stress, anxiety, depression, nightmares, insomnia levels and ACT. The dependent variable was suicidal ideation. The influence of the independent variables on the dependent variables was examined by implementing hierarchical linear regression analysis with the use of ACT as a moderator.

Materials

The materials which were used in order to conduct the study were the questionnaires (Appendix C), the information sheet (Appendix A2), the consent form (Appendix A3) and the de-briefing information form (Appendix A4). Following informed consent, participants completed the following 7 questionnaires. At the start of the survey some additional demographic questions were included as well.

General demographic questionnaire: A general questionnaire was used to examine demographic characteristics, such as age, gender, ethnicity and level of education.

Depression Anxiety Stress scale (DASS21): A questionnaire consisting of 21 items which include 4 scales designed to measure the psychological state of depression, anxiety and stress (DASS21; Antony, Bieling, Cox, Enns & Swinson, 1998). There is evidence that the DASS21 has high internal consistency, validity and reliability and is a sensitive tool in detecting common mental disorders in different populations (Tran, Tran & Fisher, 2013). The Cronbach's alpha of the DASS21 for our sample was a = .94, of the depression subscale a = .93, for the stress subscale a = .85 and for the anxiety subscale a = .84.

Acceptance and Action Questionnaire- II (AAQ-II): A 7-item scale (ranging from 1=Never true to 7= Always true) which was used to measure psychological inflexibility. Greater scores demonstrate higher levels of psychological inflexibility. The AAQ-II was reverse scored so that

higher total scores would reflect higher psychological flexibility. This process would assist in the interpretation of the results as well as the total scores of both AAQ-II and CompACT would reflect higher levels of psychological flexibility. The AAQ-II is the most widely used measure of the ACT processes and has appropriate validity and good psychometric consistency (Bond et al., 2011). The Cronbach's alpha of the AAQ-II for this sample was a = .93.

CompACT: A 23-item general measure of psychological flexibility and ACT processes which has demonstrated good internal consistency. It measures scores of the sum of 3 subscales (Openness to experience, Behavioral Awareness and Valued Action). 12 items of CompACT are reverse-scored before summation. Answers are scored on a 6-point Likert scale, ranging from 1= strongly disagree to 6= strongly agree, with greater scores of the full total score reflecting higher psychological flexibility (Francis, Dawson & Golijani-Moghaddam, 2016). The Cronbach's alpha of the CompACT for this sample was a = .89.

Depression Severity Index—Suicide Subscale (DSI-SS): A self-report questionnaire which measures the intensity and frequency of suicidal ideation (DSISS; Joiner, Pfaff & Acres, 2002). The questionnaire consists of 4 items which include 4 scales, ranging from 0 to 3 with higher scores indicating greater severity of suicidal symptoms (Joiner, Pfaff, & Acres, 2002). The DSISS has good internal consistency and construct validity (Joiner et al., 2002; Metalsky & Joiner, 1997). The Cronbach's alpha of the DSISS for this sample was a = .92.

Sleep Condition Indicator (SCI): An 8-item scale scored on a 5-point scale, ranging from 0-4, with higher values reflecting better sleep and lower scores indicating possible threshold criteria of insomnia disorder. The SCI was reverse scored so that higher scores would reflect possible threshold criteria of insomnia disorder and thus, interpretation of the results would be easier for the researcher. SCI evaluates insomnia disorder in everyday clinical practice. It has good internal consistency, validity and strong correlation with established screening instruments such

as PSQI and ISI, which are sensitive in detecting clinical insomnia (Espie et al., 2014). The Cronbach's alpha of the SCI for this sample was a = .88.

Disturbing Dream and Nightmare Severity Index (DDNSI): A 5 item scale evaluating nightmare symptom severity and frequency, with higher scores reflecting higher levels of nightmares and greater severity. Scores above 10 may indicate the presence of a nightmare disorder. Scores above 20 are generally consistent with a more severe nightmare disorder (Krakow, et al.2002). The Cronbach's alpha of the DDNSI for this sample was a = .86.

Procedure

An on-line cross-sectional survey consisting of psychometric questionnaires was advertised at the psychology department of the University of Chester site RPS and via social media (e.g. facebook, Instagram, twitter, reddit, tandem) in order to recruit the participants, gather data from the general population and explore the relationship between ACT variables and SI. The questionnaires contained the scales described above which were in the same order as displayed above.

Once participants accessed the first page of the survey, an information sheet was provided to them giving information about the rationale of the study. Participants were informed about the purpose of the study, i.e. it is a study which seeks to examine the interaction between ACT variables and anxiety symptoms in predicting suicidal ideation. There was no time limit during the whole process.

Ethics

Firstly, the effect and potential harm of participating in suicide research was explored. Empirical evidence has shown that participation in studies where individuals are extensively asked about suicidal ideation or behavior and psychiatric conditions (Gould et al., 2003; Mathias et al., 2012; Smith, Poindexter, & Cukrowicz, 2010) as well as in online suicide research

programs (Gibson, Boden, Benson, & Brand, 2014) has no negative effects on the participants. Instead, participation in such non-treatment studies has been found to be beneficial for the participants who are at greater risk of suicide attempt, reporting experiencing reduction in suicidal ideation levels and no increased distress. Thus, related studies when conducted ethically can be safe and beneficial for suicidal participants (Wong, Kwok, Michel, & Wong, 2017). Therefore, participation in the current study was not expected to affect adversely the participants. However, psychometric questionnaires associated with the psychological state of depression, anxiety and stress might cause a feeling of distress to the participants and a need for support (Gibson et al., 2014). In addition, Gibson et al. (2014) indicated that anonymous experiences regarding suicidality provoked hopes for recovery and had therapeutic benefits and suggested that it is important to ensure participants' anonymity and vulnerable participants' support. Thus, in order to reduce or prevent potential distress, consent was obtained from participants following full briefing on content of the study. Debriefing information was also included recapping the rationale of the study and providing contact information for sources of support. The information sheets clearly would inform the participants that their participation in this study would be anonymous, that at any time, anyone would have the right to withdraw from the study and that all instruments used were non-diagnostic. Upon the submission of the questionnaires, participants would no longer be able to withdraw their data since all of them were anonymous and their identification was impossible. Prior to this process, an application for ethics approval was submitted to the University of Chester School of Psychology Ethics Committee so as to be approved by the Research Ethics Committee before beginning any activity for the study. The approval indicated that the study was considered ethical and that the data collection was acceptable to begin. Subsequently, the researcher commenced the recruitment of the participants.

Finally, some steps were followed in order to ensure participants' confidentiality. Firstly, the data were collected via BOS and subsequently stored on a secure server. The data were anonymous and accessible only to the researcher and the supervisor by a security password known only to them. In addition, raw data were stored on password protected computers for minimum of five years following any publication of the data gathered. Lastly, the information sheet included the researcher's and supervisor's contact information for any questions regarding the questionnaires and the nature of the study in addition to the contact details for local charities and support groups should they desire counseling after the survey.

Analyses

The analysis of the results was implemented with the Statistical Package for the Social Sciences (SPSS, version 24.0). Four hierarchical linear regressions were performed in order to examine all the hypotheses.

All the assumptions were tested prior to the analyses and they were all met with the exception of homoscedasticity of residuals. However, the analysis can continue despite the violation of this assumption since suicide is a low base-rate behavior (Klonsky et al., 2016) and our sample is comprised of general and not high-risk population. This means that we measured the prevalence of an abnormal behavior among individuals from the general population so most of the participants were expected to report no suicidal ideation, that is scores of 0. In addition, for sample sizes larger than 200 the effect of non-normality on multivariate data analysis may be considered negligible (Hair, Black, Babin, Anderson & Tatham, 2006).

Prior to the computation of interaction variables all the predictors were mean centered, as suggested by Aiken and West (1991), so that interpretation of the results would be easier and the variables would be comparable (Hair et al., 2006). Alpha level of 0.05 was adopted for all analyses.

The first model examined the effect of the interaction between nightmares and AAQ-II on SI beyond the effects of anxiety, stress and depression. The second model examined the effect of the interaction between insomnia and AAQ-II on SI beyond the effects of anxiety, stress and depression. Anxiety, stress and depression were entered in Step 1, nightmares and insomnia respectively were entered in Step 2, AAQ-II followed in Step 3 and the interaction variable of AAQ-II with nightmares or insomnia respectively were entered in the final step of the models.

Two more hierarchical linear regressions were conducted to examine the effect of the interaction between CompACT and nightmares in predicting SI as well as the effect of the interaction between CompACT and insomnia on SI beyond the effects of anxiety, stress and depression. The final two models followed the same Steps with the same order as the first two ones, with the addition of CompACT instead of AAQ-II.

Results

A correlational analysis was conducted to explore the relationship between the study variables. Descriptive Statistics and zero-order correlations for all variables are reported in Table 1.

TABLE 1

Descriptive Statistics and Zero-Order Correlations for Research Variables

	1	2	3	4	5	6	7	8
1. Depression	-							
2. Anxiety	0.52**	-						
3. Stress	0.63**	0.71**	-					
4. AAQ_II (Psychological Flexibility)	-.069**	-0.57**	-0.63**	-				
5.CompACT(Psychological Flexibility)	-.672**	-0.50**	-0.46**	0.73**	-			
6. Suicidal Ideation (DSISS)	0.70**	0.40**	0.46**	-0.63**	-0.51**	-		
7. Insomnia (SCI)	0.44**	0.43**	0.44**	-0.46**	-0.41**	0.39**	-	
8. Nightmares(DDNSI)	0.27**	0.31**	0.35**	-0.31**	-0.25**	0.19**	0.37**	-
Mean	9.07	6.18	8.80	28.47	69.19	0.77	14.34	7.11
Standard Deviation	6.47	4.84	4.96	11.17	22.28	0.77	8.07	6.89

**p < .01.

Two hierarchical linear regression analyses were run to determine the effect of the interaction between AAQ-II and nightmares (model 1) and insomnia (model 2) on suicidal ideation. Table 2 depicts the regression coefficients at all steps of the models.

The model 1 which examined the interaction between nightmares and AAQ-II in predicting suicidal ideation was statistically significant, [R^2 = .53, F(6, 267) = 50.47, p < .001] and succeeded in predicting a total of 53% of the variability in SI. Depression (β = .67, p < 0.001) was significant unique predictor of SI but anxiety (β = .05, p > 0.5) and stress (β = .01, p > 0.5) were not. The main effect of nightmares was not significant (β = -.01, p > 0.5). However, AAQ-II was found to be a significant inversely related predictor of SI (β = -.31, p < .001) beyond

the effects of anxiety, stress, depression and nightmares and explained a significant 4 % increase of the variance in SI [ΔR^2= .04, F(1, 268)= 23.95, p < .001]. The addition of the interaction term between AAQ-II and nightmares was not significant (β= -.04, p > .05).

The model 2 which demonstrated the interaction between insomnia and AAQ-II in the prediction of SI over and above stress, anxiety, depression and insomnia was also significant and predicted a total 54% of the variance in SI [R^2= .54, F(6, 267) = 52.16, p < .001]. Similar to model 1, depression, anxiety and stress had the same effects. The main effect of insomnia was not significant (β = .10, p > 0.5). However, the addition of AAQ-II to the prediction of SI led to a statistically significant 4% increase of the variance in SI [ΔR^2= .04, F(1, 268)= 23.95, p < .001] and was inversely related to SI (β= -.29, p < .001). In addition, the interaction term of AAQ-II and insomnia also significantly predicted inversely SI (β= -.09, p < .05) over and above stress, anxiety, depression and insomnia and explained an additional 0.8% increase of the total variance in SI [ΔR^2= .01, F(1, 267)= 4.50, p < .05].

TABLE 2

Hierarchical Linear Regression Models Predicting Suicidal Ideation from the Interaction Between AAQ-II and Nightmares (Model 1) and Insomnia (Model 2) beyond anxiety, stress and depression.

Model	Variable	β	t	p
1. Nightmares				
Step 1 (R^2= .49, p <.001)	Depression	.67	11.91	< .001
	Anxiety	.05	0.74	> .05
	Stress	.01	0.08	> .05
Step 2 (ΔR^2= .00, p = .87)	Nightmares	-.01	-0.17	> .05
Step 3 (ΔR^2= .04, p < .001)	AAQ-II	-.31	-4.89	< .001
Step 4 (ΔR^2= .00, p = .36)	Nightmares × AAQ-II	-.04	-0.91	> .05
2. Insomnia				
Step 1 (R^2= .50, p < .001)	Depression	.67	11.91	< .001
	Anxiety	.05	0.74	> .05
	Stress	.01	0.08	> .05
Step 2 (ΔR^2= .01, p = .06)	Insomnia	.10	1.88	> .05
Step 3 (ΔR^2= .04, p < .001)	AAQ-II	-.29	-4.62	< .001
Step 4 (ΔR^2= .01, p < .05)	Insomnia × AAQ-II	-.09	-2.12	< .05

Two further hierarchical linear regression analyses were run to determine the effect of the interaction between CompACT and nightmares (model 3) and insomnia (model 4) on suicidal ideation. Table 3 presents the regression coefficients at all steps of the models.

The model 3 which showed the main effect of the interaction between CompACT and nightmares on the prediction of SI above and beyond the effects of anxiety, stress, depression and nightmares, was statistically significant and predicted a total of 49% of variance in SI [R^2= .49, F(6, 267) = 43.04, p < .001]. Similar to model 1, anxiety, stress, depression and nightmares had the same effects and values. Neither the main effect of CompACT (β= - .07, p > .05) nor the main effect of the interaction between CompACT and nightmares (β= .04, p > .05) was significant in predicting SI when entered in the model.

The model 4 which explored the main effect of the interaction between CompACT and insomnia on the prediction of SI above and beyond the effects of anxiety, stress, depression and insomnia significantly predicted a total of 50% of variance in SI [R^2= .50, F(6, 267) = 43.79, p < .001]. Similar to model 2, the main effect of insomnia was not significant (β = .10, p > 0.5). In addition, both the main effects of CompACT (β = -.05, p > 0.5) and the interaction between CompACT and insomnia (β = .01, p > 0.5) were not significant predictors of SI when entered in the model.

TABLE 3

Hierarchical Linear Regression Models Predicting Suicidal Ideation from the Interaction Between CompACT and Nightmares (Model 1) and Insomnia (Model 2) beyond anxiety, stress and depression.

Model	Variable	β	t	p
3. Nightmares				
Step 1 (R^2= .49, p < .001)	Depression	.67	11.91	< .001
	Anxiety	.05	0.74	> .05
	Stress	.01	0.08	> .05
Step 2 (ΔR^2= .00, p = .87)	Nightmares	-.01	-0.17	> .05
Step 3 (ΔR^2= .00, p = .28)	CompACT	-.07	-1.09	> .05
Step 4 (ΔR^2= .00, p = .39)	Nightmares × CompACT	.04	0.87	> .05
4. Insomnia				
Step 1 (R^2= .49, p < .001)	Depression	.67	11.91	< .001
	Anxiety	.05	0.74	> .05
	Stress	.01	0.08	> .05
Step 2 (ΔR^2= .01, p = .06)	Insomnia	.10	1.88	> .05
Step 3 (ΔR^2= .00, p = .40)	CompACT	-.05	-0.84	> .05
Step 4 (ΔR^2= .00, p = .80)	Insomnia × CompACT	.01	0.26	> .05

Discussion

Answering the research hypotheses of the study

The aim of the study was to investigate whether ACT variables would interact with insomnia and nightmares in predicting SI beyond the effects of anxiety, stress and depression. Our results showed that anxiety, stress and depression significantly predicted higher scores of SI (as shown in Models 1, 2, 3 and 4), supporting thus the hypothesis 1. However, the findings demonstrated that the additional effects of insomnia (models 2 and 4) and nightmares (models 1 and 3) were insufficient to increase SI. Thus, the hypothesis 2 that high levels of insomnia and nightmares would significantly predict higher scores of SI beyond the effects of anxiety, stress and depression was not supported. Nevertheless, models 1 and 2 indicated that the addition of ACT variables significantly and inversely predicted SI over and above the effects of anxiety, stress, depression, nightmares and insomnia. Therefore, the findings supported the 3rd hypothesis. Moreover, the interaction between ACT variables and insomnia was statistically significant in predicting SI (model 2). However, we did not find any significant predictive value of the interaction between ACT variables and nightmares to the outcome variable (models 1 and 3). Hence, the 4th hypothesis that ACT components would moderate the relationship between sleep disorders and SI beyond the effects of anxiety, stress and depression was partly supported by our results.

Comparing findings to previous literature

The effect of anxiety, stress and depression on SI

According to the findings, anxiety, stress and depression significantly predicted a total of 49% of variance in SI. The highest amount of variance in SI across all models was explained by these predictors. However, the coefficients showed that depression ($\beta = .67$, $p < 0.001$) was the only significant unique predictor of SI. Anxiety ($\beta = .05$, $p > 0.5$) and stress ($\beta = .01$, $p > 0.5$) did not add a significant unique contribution to the models.

Existing research evidence has shown a strong positive association between anxiety, stress, depression and SI, that is by increasing these factors SI also increases (Bantjes et al., 2016; Izadinia et al., 2010; Lee et al., 2010; Nguyen et al., 2013; O'Neil Rodriguez & Kendall, 2014). However, the results are not surprising given that several studies which have conducted regression analyses have indicated that depression is the most important contributing factor in predicting SI (Bantjes et al., 2016; Ibrahim et al., 2014; Izadinia et al., 2010), or the only predictor of SI among anxiety, depression and stress (Ibrahim et al., 2014), while there is also evidence that depression is a strong mediator of SI (Sun, Hui & Watkins, 2006). All of the aforementioned studies including the current one, examined SI scores on general population. Opposite results were indicated by O'Neil Rodriguez and Kendall (2014) who supported that anxiety symptomatology was a strong predictor of SI above and beyond depressive symptoms. They suggested that persistent anxiety levels may bring hopelessness and increase thus, the potential of suicidal thoughts as an avenue of relief from these emotions. However, their sample comprised of anxiety-disordered individuals and not of a population-based sample as our sample did. Hence, measuring the presence of generalized anxiety disorders and not only scores of general anxiety symptomatology might have provided us with different results.

In addition, Carter, Silverman, Allen and Ham (2008) indicated that the predictive effect of anxiety on SI, and not of depression, depends on the measures used since they may give different results and thus, they need to be considered carefully in research studies. This view has also been supported by Ibrahim et al. (2014) whose findings were in line with ours. Ibrahim et al. (2014) suggested that the non-significant predictive effect of anxiety on SI could be attributed to the lack of the indication of the worry construct in the anxiety measurement. Carter et al. (2008) utilised brief and full-length versions of the Revised Children's Manifest Anxiety Scale which measures physiological anxiety, worry, social anxiety and defensiveness and has been shown to have good reliability and validity. Their study indicated that anxiety predicted SI depending on the

version of the scale used. Specifically, the worry construct was shown to be present in anxiety disordered individuals with SI (Carter et al., 2008). However, both in the present study and Ibrahim's et al. (2014) DASS-21 was used to measure anxiety, which mostly reflects anxiety symptoms which may not be strong indicators of SI. This fact could possibly explain the non-significant contribution of anxiety on SI in the current study.

Moreover, the DSI-SS has one item which relates specifically to planning but measures suicide attempts as well (Joiner et al., 2002). Nguyen et al. (2013) who examined separately suicide plans and attempts, demonstrated that although suicide attempts were highly predicted by both anxiety and depression, depression was found to be the strongest predictor of suicide planning. This finding could further explain our results since we measured total scores of the DSI-SS and we did not distinguish between its subcategories.

Finally, our results regarding the non-significant unique effect of stress on SI were also in contrast with previous research (Bender, Rosenkrans, & Crane, 1999; Zhang, Wang, Xia, Liu & Jung, 2012). However, similar to our findings, Ibrahim et al. (2014) indicated that stress was not a significant unique predictor of SI. A possible explanation is again associated with the sensitivity of stress measurement. That is, DASS-21 does not measure adverse life stressful events, as Zhang et al. (2012) reported, but general stress scores and thus, the intensity of stress scores measured in this study may be insufficient to affect SI. In addition, several studies suggest that stress is not directly linked to SI but is strongly correlated to depression which in turn increases SI scores (O'Connor, Rasmussen & Hawton, 2010; You, Chen, Yang, Zhou & Qin, 2014).

The effect of nightmares and insomnia on SI

Contrary to what was expected, our results indicated that insomnia and nightmares added no statistically significant effect over and above anxiety, stress and depression on the prediction of SI.

Previous research evidence supports that nightmare disorders are associated with increased suicidality. More importantly, nightmares have been indicated as an independent predictor of suicidal ideation (Bernert & Joiner, 2007; Cukrowicz et al., 2006; Hochard, 2014; Nadorff et al., 2011; Susánszky et al., 2011; Wong et al., 2011) even after controlling for depression and anxiety. Therefore, it has been suggested that having nightmares may increase the risk of experiencing SI (Nadorff et al., 2011) or self-harmful thoughts (Hochard et al., 2015), regardless of any other coexisting mental disorders.

However, it has been suggested that further mechanisms may mediate the relationship between nightmares and SI. Hochard et al. (2015) showed that negative affect partially mediated the relationship between nightmares and self-harm and suggested that further mechanisms should be examined. For instance, it has been found that hyperarousal may explain the link between nightmares and suicidality, and thus it should be taken into account when examining this relationship (Hochard, 2014; McCall & Black., 2013). However, levels of hyperarousal were not considered in the current research.

In addition, similar to our findings, Richardson, Cyr, Nelson, Elhai and Sareen (2014) found no significant effect of nightmares on SI after controlling for posttraumatic stress disorder (PTSD), generalised anxiety disorder (GAD) and major depressive disorder (MDD), indicating MDD as the most significant predictor of SI. Moreover, Hochard et al. (2015) indicated that post sleep self-harmful thought and behaviors following the occurrence of nightmares, occurred in individuals with self-harm history only and that nightmares are insufficient to increase SI and must interact with self-harm history, in order to predict suicidality (Hochard et al., 2017; Ribeiro, Silva & Joiner, 2014). Similarly, Sjöström et al. (2009) suggested that frequent nightmares predicted suicidal behavior in individuals who had already attempted suicide in the past. Hence, the predictive power of nightmares on self-harmful thoughts and behaviors for individuals with no self-harm history may be limited. Therefore, a lack of an interaction effect would fail to show

a predictive effect of nightmares on suicidality. However, in the current study we did not examine self-harm history and such interactions. Hence, these previous findings may explain and well fit with our results which showed no significant effect of nightmares on SI beyond the effect of anxiety, stress and depression.

With regards to insomnia, contrary to our findings, several studies have shown that insomnia is a strong predictor of SI (Lee et al., 2010; McCall & Black, 2013; McCall et al., 2010; Ribeiro et al., 2012; Richardson et al., 2017; Wong et al., 2011), with insomnia severity increasing the likelihood of SI (McCall et al., 2010; Richardson et al., 2017). However, the literature has yielded mixed and inconsistent results. According to Bernert et al. (2005) and Cukrowicz et al. (2006), insomnia was associated with increased suicidality before controlling for depression, but no association was found between the variables after controlling for depressive symptoms. Similarly, Hochard et al. (2017b) found no significant additional effect of insomnia on SI over and above depressive symptoms. As with nightmares, insomnia predicted SI only when interacting with self-harmful history or perceived inescapability of the distress caused by insomnia. Therefore, a lack of an interaction effect would fail to show a predictive effect of insomnia on suicidality.

Additionally, Nadorff et al. (2011) and Richardson et al. (2018) found that depression completely mediated the relationship between insomnia and suicidal ideation and suggested that their relation can be explained by these disorders. Further, McCall and Black (2013) argued that insomnia is a symptom of depression. Although there is a bidirectional relationship between insomnia and depression on the literature, insomnia and depression have shown to be co-morbidities (NG, 2015). Therefore, taken all together, given that depression in the current study was indicated as a unique predictor in a model accounting for 49% of the variance in SI, it could be suggested that insomnia may have been insufficient to explain further effect above depression on SI. Finally, another possible explanation for the discrepancy of the results could

be the fact that we did not measure the presence or absence of possible mental disorders, such as PTSD, generalized anxiety disorders or panic disorders. For example, a very recent study from Richardson et al. (2018) indicated that although insomnia predicted increases on SI, this association was no longer significant after controlling for mental disorders, such as PTSD, MDD and GAD. However, the study utilized a treatment-seeking military sample and not general population sample as the current study did, thus high rates of these disorders may minimize the influence of insomnia on SI (Richardson et al., 2017).

Finally, a very interesting finding which could also explain our results is associated with the duration of insomnia symptoms and nightmare severity. Nadorff, Fiske & Nazem (2013) indicated that the duration of both of these sleep disturbances was associated with higher suicide risk after controlling for anxiety, depression, insomnia symptoms and nightmares and suggested that symptom duration of insomnia and nightmares should be taken into account when examining SI scores. However, the current study did not examine this variable which could possibly have explained our findings regarding the non-significant effect of insomnia on SI.

The protective role of Acceptance and Commitment Therapy against SI

As it was expected, the results of the current study showed that ACT variables (measured with AAQ-II) inversely predicted SI beyond the effects of anxiety, stress, depression, insomnia (model 2) and nightmares (model 1), while their addition explained a significant 4% increase of the variance in SI for both models 1 and 2. Hence, the findings indicated that ACT components (acceptance and psychological flexibility) significantly reduced SI scores and suggested that ACT can have a protective role against SI.

Existing research evidence has shown a strong negative association between ACT and SI (Ducasse et al., 2018; Ducasse et al., 2014; Walser et al., 2015). Specifically, Walser et al.

(2015) who examined the effect of ACT on SI and depression, with the use of AAQ-II to measure experiential acceptance, indicated that increases in experiential acceptance scores were linked to lower depression and SI scores. More interestingly and consistent with our results, higher AAQ-II scores predicted lower scores of SI, even after controlling for depression. In addition, Ducasse et al. (2018) in their randomized controlled trial, showed that ACT decreased suicidal behavior in highly suicidal individuals and its effectiveness remained stable at the follow-up assessment after 3 months.

Previous studies have suggested that ACT targets experiential avoidance and cognitive fusion and increases acceptance skills, psychological flexibility and mindful awareness and thus, decreases the effort to escape from emotional pain or unwanted thoughts, such as suicidal thoughts (Ducasse et al., 2014; Luoma & Villatte, 2012; Murrell et al., 2014; Walser et al., 2015). Bryan, Ray-Sannerud and Heron (2015) indicated that higher psychological flexibility was linked to lower SI scores and suggested that psychological flexibility may protect against some risk factors for SI. Walser et al. (2015) suggested that acceptance skills may disrupt depressive or avoidance processes by observing these experiences and allowing individuals to use a more adaptive response to stress. Hence, ACT components can address a wide variety of pathways which lead to suicide, such as several mental disorders (e.g. depression, stress and anxiety) and thus decrease suicidal thoughts (Hayes et al., 2008). The findings of the current study are also consistent with other mindfulness approaches which have shown to be effective in decreasing SI scores (Luoma & Villate, 2012).

The moderating role of ACT in the relationship between sleep disorders and SI

According to our findings, the interaction between ACT variables and insomnia was statistically significant in predicting inversely SI beyond the effects of anxiety, stress and depression. These findings demonstrate that ACT components could moderate the effect of insomnia on SI, that is individuals with high levels of insomnia and high scores of ACT would

benefit from ACT in reducing SI scores. To the knowledge of the researcher there is no existing evidence indicating interaction between ACT and insomnia on predicting odds of SI.

However, the relationship between insomnia and ACT has already been examined by previous studies and research evidence suggests that ACT is effective in decreasing insomnia symptoms and in improving sleep satisfaction (Baik, 2015; Laakso, Tolonen & Wallin, 2014; Lundh, 2005; McCracken, Williams & Tang, 2011; Ong et al., 2012; Pelkonen & Puha, 2013) while it has been also proposed as an effective intervention for insomnia (Laasko et al., 2014) and as an additional useful treatment to existing treatments for insomnia (Dalrymple et al., 2010). In addition, several studies have supported that insomnia is a strong predictor of SI (Lee et al., 2010; McCall & Black, 2013; McCall et al., 2010; McCracken et al., 2011; Ribeiro et al., 2012; Richardson et al., 2017; Wong et al., 2011) and that ACT is protective against SI (Ducasse et al., 2014; Luoma & Villatte, 2012; Murrell et al., 2014; Walser et al., 2015). These previous findings would well fit with the results of this research. However, the current study failed to indicate a significant effect of insomnia on SI.

It should be noted though that higher scores of AAQ-II in the current study showed higher psychological flexibility, a core concept in ACT, and were inversely related to SI, thus they predicted lower SI scores. If we inversed AAQ-II scores, lower psychological flexibility would be interpreted as high psychological inflexibility and it would positively predict higher SI scores. Taken all together, the interaction between high insomnia levels and high psychological inflexibility would increase SI scores instead of decreasing them. Hence, the findings demonstrated that insomnia alone, is insufficient to predict SI, and requires the addition of psychological inflexibility to increase SI scores. In line with our results, Hochard et al. (2017b) showed that insomnia predicted increases on SI only when interacting with self-harmful history or perceived inescapability of the distress (urge to escape distress) caused by insomnia and not alone. Therefore, given that psychological inflexibility is highly associated with increased

insomnia symptoms (Kato, 2016a) and since in the current study it affected the interaction between insomnia and SI, promoting psychological flexibility and acceptance skills may be beneficial and protective for individuals with insomnia symptoms (Ducasse et al., 2018; Hochard et al., 2017b; Kato, 2016a; Walser et al., 2015) in reducing the risk of developing SI. Therefore, the results of the current study suggest that ACT components can be effective in reducing SI scores in people with insomnia.

Contrary to what was expected, the results of the current study showed that ACT did not moderate the relationship between nightmares and SI after controlling for anxiety, stress and depression. To the best of our knowledge, this was the first study examining the moderating role of ACT in the relationship between nightmares and SI and thus, there is no empirical evidence confirming or contradicting our results. The findings demonstrated that SI scores were not affected by the interaction between nightmares and ACT, which means that psychological inflexibility did not increase the risk for developing SI in individuals with nightmares. However, ACT components were expected to interact with nightmares on changing SI scores, given the effect of ACT on sleep disorders (Pelkonen & Puha, 2013) and sleep disturbances (Ong et al., 2012) as well as given the link between nightmares and an increased risk for SI (Hochard et al., 2017a).

As mentioned above, our study indicated that ACT components significantly decreased SI scores after controlling for anxiety, stress, depression and nightmares. Therefore, ACT variables were sufficient to affect SI scores. However, when the interaction of nightmares and ACT was added to the model, no further decrease on SI scores was predicted. These findings could be plausible since the present study found no significant effect of nightmares on SI which might be attributable to a lack of interaction with other variables, such as self-harm history as previously mentioned (Hochard et al., 2017a; Ribeiro et al., 2014).

All in all, neither insomnia nor nightmares predicted increases on SI scores. However, only when ACT interacted with insomnia and not with nightmares, predicted lower SI scores. Correlations between insomnia and ACT (Baik, 2015; Laakso et al., 2014; Lundh, 2005; McCracken et al., 2011; Ong et al., 2012; Pelkonen & Puha, 2013) have long been supported in contrast to the correlation between nightmares and ACT, which has no empirical evidence supporting it. A possible explanation for this finding in the current study could be attributed to the correlation between insomnia, nightmares and SI. Considering the sizes of the correlations obtained from the zero-order correlations (table 1), insomnia had a higher correlation with SI (r = .39, $p < .01$) compared to nightmares (r = .19, p < .01). Given these values it could be expected that the interaction term between insomnia and ACT would result in lower values than the interaction between nightmares and ACT on predicting SI.

Evaluating the implications and significance of the findings

The findings of the current research may contribute to the existing literature in a number of significant ways. Firstly, our primary interest in this study was to explore the effect of ACT components on SI scores after controlling for the effect of stress, anxiety and depression. Our findings suggested that ACT components could have a protective role against SI. This is notably an important finding given that ACT research with regards to SI is still in its early stages of development (Ducasse et al., 2014; Hayes et al., 2008; Murrell et al., 2014) and thus, the existing evidence is insufficient in order to recommend ACT as an intervention of SI (Tighe et al., 2018). Scientific evidence from a very recent randomized controlled trial suggested the effectiveness of ACT in suicidal behavior in highly suicidal individuals (Ducasse et al., 2018). However, the existing research has examined its effectiveness in clinical samples (Ducasse et al., 2018; Ducasse et al., 2014; Walser et al., 2015) and not the predictive effect of ACT components on SI in adults of the general population as the current study did. Hence, our findings have significant implications for the use of ACT as a preventative intervention in altering

suicidal thoughts and symptoms as well as in altering the pathways which lead to suicidality in non-clinical population. Intervening early is highly significant since research has shown that SI may also occur among healthy individuals without any diagnostic conditions (Chiles & Strosahl, 2008) and given the strong link between SI and suicidal behavior (Nock et al., 2008).

Second, the most important outcome of this study is the finding regarding the moderating role of ACT components in the relationship between insomnia and SI, which was part of the main aim of the study. Research evidence has suggested that ACT is effective in decreasing insomnia symptoms (Baik, 2015; Laakso et al., 2014; Lundh, 2005; McCracken et al., 2011; Ong et al., 2012; Pelkonen & Puha, 2013) and that ACT is protective against SI (Ducasse et al., 2014; Luoma & Villatte, 2012; Murrell et al., 2014; Walser et al., 2015). However, to the knowledge of the researcher, this is the first study which examined the interaction between ACT components and insomnia in predicting scores of SI. Specifically, the current study provided evidence that high psychological inflexibility when interacting with high levels of insomnia may increase SI scores beyond the effects of anxiety, stress and depression. Thus, our study added to the literature as it contributed to the greater understanding of ACT components and its outcomes, demonstrating that individuals with high levels of insomnia and high scores of psychological flexibility could benefit from ACT in reducing SI scores. Hence, identifying individuals most at risk, e.g. with higher levels of insomnia and psychological inflexibility and implementing appropriate ACT based interventions could benefit them from developing SI.

Finally, the findings could also provide evidence for the use of AAQ-II and CompACT in measuring ACT components. The implications of these findings are described below.

Comparing the instruments AAQ-II to CompACT in measuring ACT components

ACT components in the current study were measured with the AAQ-II and CompACT scales. Both scales measure scores of psychological flexibility which is the core concept in ACT (Francis et al., 2016; Bond et al., 2011). Both instruments have been shown to have good psychometric properties. In the current sample, the Cronbach's alpha of the CompACT was a = .89 and for AAQ-II was a = .93. In addition, the two scales were significantly positively correlated (r =.73, p < .01), which is a very high correlation. However, as described below it seems that there is a big difference between the way that AAQ and CompACT measure things.

This was the first study examining the impact of ACT components on SI and its interaction with insomnia and nightmares with the use of CompACT to assess psychological flexibility. However, in contrast to AAQ-II, no significant associations were found between CompACT and the other variables. It has been argued that although they both measure total scores of psychological flexibility, AAQ-II's items primarily reflect defusion/fusion processes and acceptance/experiential avoidance and although indirectly capture behavioral awareness or valued action (domains of psychological flexibility), these processes are somewhat secondary and implicit. According to Francis et al. (2016) CompACT captures these domains directly. In addition, Wolgast (2014) reported that AAQ-II's items appear to overlap with distress and thus, it might be difficult to indicate whether its total scores reflect aversive memories, emotions and worries or experiential avoidance/ psychological inflexibility. On the other hand, CompACT's items have been found to separate well from distress items (Francis et al., 2016). Hence, AAQ-II has been criticized as being somewhat inadequate in capturing the breadth and scope of psychological flexibility, and thus of ACT processes (Francis et al., 2016).

On the other hand, the AAQ-II is the most widely used measure of the ACT processes (Bond et al., 2011; Ruiz, Herrera, Luciano, Cangas & Beltran, 2013) while it is considered as the 'gold standard' measure of psychological flexibility (Schmalz & Murrell, 2010). To the best of our

knowledge, all of the studies which have measured ACT variables in relation to SI and mental disorders have utilized the AAQ-II (e.g. Baik, 2015; Ducasse et al., 2014; Kato, 2016a; McCracken et al., 2011; Pelkonen & Puha, 2013; Roemer et al., 2008; Walser et al., 2015) and they have all provided evidence for its adequate internal consistency while it has been suggested that it has expected correlations with measures of emotional distress and avoidant coping (Hayes et al., 2004), depression and anxiety and that it is a valid and reliable instrument in measuring experiential avoidance and psychological flexibility (Palladino et al., 2013; Pinto-Gouveia, Gregório, Dinis & Xavier, 2012; Fledderus, Voshaar, Klooster & Bohlmeijer, 2012). For instance, Kato (2016b) showed that AAQ-II scores were correlated to PHQ-9 scores, which measure major depression, beyond the effect of mild depressive symptoms. Similarly, Kato (2016a) in another study indicated that AAQ-II scores were associated with major depressive scores beyond the effect of insomnia symptoms and were associated with insomnia symptoms when controlling for the effect of major depressive scores.

Nevertheless, although the validation of CompACT isn't as extensive as the AAQ-II (Bond et al., 2011; Ruiz et al., 2013), CompACT has been suggested as a valid measure of ACT processes (Dawson, Dave, Moghaddam, Nima, Francis & Ashley, 2017; Francis et al., 2016), thus future studies could re-examine its effectiveness as well as future research could determine whether AAQ-II's items overlap with psychological dysfunction (Kato, 2016a). In addition, future studies may wish to combine the AAQ-II with measures which capture other domains of psychological flexibility. For instance, the Engaged Living Scale (ELS) measures commited action and values (Trompetter et al. 2013), which are 2 of the 6 core processes of the ACT Helaflex (Hayes et al., 2006). In addition, Cognitive Fusion Questionnaire captures cognitive fusion (Gillanders et al., 2014) and the Self-as-Context Scale (SACS) assesses self-as-context (Gird, 2013), both core processes of the ACT Helaflex (Hayes et al., 2006).

Limitations

The current research has some limitations which may have affected the findings and must be considered.

First, the research was based on self-report measures only. Self-report measures are considered to be the least expensive and most convenient way regarding data collection in large populations and are extensively utilized by community-based studies (Shephard, 2003). However, self-report measures may also introduce bias into the research since participants may give no true responses due to amusement motives and deliberate or distorted self-perception or social desirability as well as reported experiences may be imprecise and decrease the strength of the observed associations (Richter & Johnson, 2001). However, with regards to SI reports, evidence has shown that people tend to disclose more on a self-report measure rather than in face-to-face interviews (Kaplan et al., 1994). In addition, Safer (1997) showed that self-reported suicide attempts are more often reported under conditions where anonymity is ensured.

Second, the generalizability of our results is limited by the small sample size included in the current research. Given that suicide is a low base-rate behavior (Klonsky et al., 2016) and our sample was comprised of general and not high-risk population, most of the participants reported no suicidal ideation. Most studies investigating factors affecting SI have utilized large samples over 600 participants (Hochard et al., 2017b; Nadorff et al., 2014; Walser et al., 2015). Therefore, future studies which would wish to replicate these results in non-clinical population could use larger samples in order to increase the prevalence of SI and confirm the protective role of ACT in the relationship between sleep disorders and SI.

Third, the study did not examine for the presence of other mental disorders. Research has indicated a strong association between SI and a wide range of mental disorders such as panic disorders, GAD, MDD or PTSD (Agargun & Besiroglou, 2005; Gliatto & Rai, 1999; Gould

et al., 2003; Nock et al., 2008; O'Neil Rodriguez & Kendall, 2014), that is presence of such disorders may increase the severity of SI. Thus, existing mental health disorders may have influenced SI scores in the current study (Richardon et al., 2018). Therefore, future research may benefit from utilizing diagnoses instead of symptoms and from investigating the association between ACT and sleep disorders on predicting scores on SI when controlling for a range of mental disorders.

Fourth, another limitation of the study is a potential language bias which might have been created with the use of the English-language questionnaires. Some of the respondents of the survey were non-native English speakers and thus, they might have not possessed a sufficient level of English. Therefore, a lack on their confidence or understanding in responding in a non-native language may have affected the results (Harzing, Reiche & Pudelko, 2013).

Finally, the cross-sectional design is another one limitation of the study. This allowed for the investigation of possible relationships but sufficient causal evidence for the association between ACT components and SI could not be provided. However, this is the first study which linked ACT, sleep disorders and SI so it will possibly lay the groundwork for future studies to employ experimental designs or longitudinal data in order to shed light on a possible cause and effect relationship (Solem, 2015).

Conclusion and Future Suggestions

In summary, ACT components decreased SI scores after controlling for depression, anxiety, stress, insomnia and nightmares. In addition, ACT variables moderated the relationship between insomnia and SI by decreasing SI scores. Taken together, these findings provide support for the protective role of psychological flexibility against SI and the effectiveness of ACT components in decreasing suicidal thoughts and behaviors in individuals with high scores of insomnia symptoms. Therefore, while research is needed to indicate causality, the data suggest

that an ACT based intervention could benefit individuals with insomnia from developing SI. Support for our findings has been provided by Ducasse et al. (2018) and by Hochard et al. (2017b) who suggested that ACT could be beneficial in increasing individuals' ability to cope with distress in the long-term and in turn, reduce suicidal risk.

Further, ACT could be also suggested as an adjunctive treatment for individuals with high levels of insomnia. For example, applying ACT in combination with traditional behavioral treatments might be particularly helpful for individuals with insomnia who do not respond to other behavioral techniques (Dalrymple et al., 2010; Hertenstein et al., 2014), which in turn would protect them from the development of suicidal thoughts and behaviors.

In contrast to expectations, insomnia and nightmares did not predict increases on SI. It was suggested that further mechanisms may mediate the relationship between nightmares and SI and between insomnia and SI, such as hyperarousal and negative affect or other mental disorders, such as posttraumatic stress disorder, generalised anxiety disorder and major depressive disorder (MDD) (Richardson et al., 2018). In addition, an interaction of nightmares and insomnia with other factors such as self-harm history or past suicide attempts (Hochard et al., 2017a; Ribeiro et al., 2014) might have provided us with different results. Therefore, further evaluation of the relationship between sleep disorders and SI and possible mediators, psychological mechanisms or other predictors of SI is warranted.

Moreover, in contrast to anxiety and stress, depression was indicated as the only one significant unique predictor of SI. The findings suggested that stress and anxiety measurements should be considered carefully since they may not capture some variables which are associated with the outcome variable. For example, DASS-21 mostly reflects anxiety symptoms and does not capture the indication of the worry construct which has been shown to affect SI and be present in anxiety disordered individuals with SI (Carter et al., 2008).

Finally, although our findings did not support the interaction between ACT components and nightmares on predicting SI scores, this is the first attempt in the literature which investigated the relationship between ACT components and nightmares, so future studies could examine for potential associations, since ACT has been shown to be effective on sleep disorders (Pelkonen & Puha, 2013) and sleep disturbances (Ong et al., 2012). In addition, ACT could be more beneficial in combination with Image Rehearsal Therapy, an effective treatment for nightmares (Casement & Swanson, 2012), in order to increase the well-being and treatment effectiveness for most vulnerable individuals in the long-term.

All in all, SI is undoubtedly a major risk factor for suicide (Han et al., 2014; Jobes, 2006; Klonsky et al., 2016). Therefore, the findings of the current study provide an avenue for further investigations as our data showed that increased psychological flexibility (as measured with AAQ-II) could be beneficial in decreasing SI scores as well as that ACT variables could be protective in individuals with insomnia against developing SI.

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5F9GfSYSzFGzb79E1iQslftKRSMNHwJ1CF4iCqQ%3d%3d&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d15558755%26AN%3d100680302

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Appendices

A)

Appendix A1: Ethics Application Form

Staff / Office Use Only ***DOPEC NUMBER:*** *Click here to enter text.* ***Umbrella project DOPEC number (staff)*** *Click here to enter text.*				
APPLICANT SURNAME FANIOUDAKI				
APPLICANT:	**UG ☐**	**PGT ☒**	**PGR ☐**	**Staff ☐**
***REVIEW PROCESS*:**	**Accelerated ☐**	**Full ☒**		
APPLICATION STATUS:	**New application ☒**	**Major amendment ☐**	**Resubmission ☐**	
APPLICATION FOR:	**Dissertation ☒**	**Teaching ☐**	**Research & publication ☒**	
***ATTTENDENCE AT HEALTH & SAFETY BRIEFING*:**	**Yes ☐**	**No ☐**	**N/A ☒**	
INCLUSION OF RISK ASSESSMENT FORM:	**Yes ☐**	**No ☐**	**N/A ☒**	

NOTES ON THE ROLE AND FUNCTION OF THE DEPARTMENT OF PSYCHOLOGY ETHICS COMMITTEE.

- *All decisions of the committee are based on the application form and reviewers comments ONLY. Forms should be as detailed and clear as possible. Verbal discussions are not considered as part of the application or review process.*
- *The review process strictly adheres to the University of Chester Research Governance Handbook and the BPS Code of Ethics.*
- *The decision of the committee is final. If you are a UG, PGT or PGR student you should discuss the decision of the committee with your supervisor. If you are a member of staff you may contact the chair of the committee for further clarification.*

Before completing the form researchers are expected to familiarise themselves with the regulatory codes and codes of conduct and ethics relevant to their areas of research, including those of relevant professional organisations and ensure that research which they propose is designed to comply with such codes.
Department of Psychology Ethical Approval for Research: Procedural Guidelines.
University of Chester Research Governance Handbook
http://ganymede2.chester.ac.uk/view.php?title_id=522471
BPS Code of Ethics
http://www.bps.org.uk/system/files/Public%20files/bps_code_of_ethics_2009.pdf
BPS Code of Human Research Ethics
http://www.bps.org.uk/sites/default/files/documents/code_of_human_research_ethics.pdf
BPS Guidelines for Internet-mediated Research
http://www.bps.org.uk/system/files/Public%20files/inf206-guidelines-for-internet-mediated-research.pdf
BPS Research Guidelines and Policy Documents

http://www.bps.org.uk/publications/policy-and-guidelines/research-guidelines-policy-documents/research-guidelines-poli

Any queries email: n.davies@chester.ac.uk or psychology_ethics@chester.ac.uk

CHECK LIST.

Please complete the form below indicating attached materials. Prior to submission supervisors must confirm that they have reviewed the application by completing the supervisors column.

Notes: Students to indicate where information is found, supervisor to confirm by ticking green column	**Supervisor confirmation**	**Information. sheet**	**Letter**	**Email**	**Email info. page**	**Consent Form**	**PowerPoint**	**N/A**
Brief details about the purpose of the study	☒	☒	☐	☐	☐	☐	☐	☐
Contact details for further information	☒	☒	☐	☐	☐	☐	☐	☐
Explanation of how and why participant has been chosen	☒	☒	☐	☐	☐	☐	☐	☐
Notification that materials/interviews are not diagnostic tools/therapy or used for staff review/development purposes	☒	☒	☐	☐	☐	☐	☐	☐
Explanation participation is voluntary	☒	☒	☐	☐	☐	☐	☐	☐
Details of any incentives or compensation	☒	☒	☐	☐	☐	☐	☐	☐
Details of how consent will be obtained	☒	☐	☐	☐	☐	☒	☐	☐
If research is observational, consent to being observed	☒	☐	☐	☐	☐	☐	☐	☒
Details of procedure so participants are informed about what to expect	☒	☒	☐	☐	☐	☐	☐	☐
Details of time commitments expected	☒	☒	☐	☐	☐	☐	☐	☐
Details of any stimuli used	☒	☐	☐	☐	☐	☐	☐	☒
Explanation of right to withdraw and right to withdraw procedure	☒	☒	☐	☐	☐	☐	☐	☐
Option for omitting questions participant does not wish to answer	☒	☒	☐	☐	☐	☐	☐	☐
Procedure regarding partially completed questionnaires or interviews	☒	☒	☐	☐	☐	☐	☐	☐
With interviews, information regarding time limit for withdrawal	☒	☐	☐	☐	☐	☐	☐	☒
Details of any advantages and benefits of taking part	☒	☒	☐	☐	☐	☐	☐	☐
Details of any disadvantages and risks of taking part	☒	☒	☐	☐	☐	☐	☐	☐

Information that data will be treated with full confidentiality and that, if published, those data will not be identifiable as theirs	☒	☒	☐	☐	☐	☐	☐	☐
Debriefing details	☒	☒	☐	☐	☐	☐	☐	☐
Dissemination information	☒	☒	☐	☐	☐	☐	☐	☐
Further information (relevant literature; support networks etc)	☒	☒	☐	☐	☐	☐	☐	☐

Supervisor Signature: K.Hochard Date:09/03/2018

University of Chester

DEPARTMENT OF PSYCHOLOGY APPLICATION TO DEPARTMENTAL ETHICS COMMITTEE

WHEN COMPLETING THE FORM PLEASE REFER TO THE DOP ETHICS PROCEDURAL GUIDELINES HANDBOOK.
UG AND PGT STUDENTS CAN ACCESS A COPY ON THEIR RELEVANT MOODLE PAGE.
PGR AND STAFF SHOULD CONTACT n.davies@chester.ac.uk ***or*** psychology_ethics@chester.ac.uk

1. Working title of the study

Notes: The title should be a single sentence

Exploring the relationship between ACT variables and suicidal ideation in individuals with anxiety symptoms.

2. Applicant name and contact details

Notes: The primary applicant is the name of the person who has overall responsibility for the study. Include their appointment or position held and their qualifications. For studies

where students and/or research assistants will undertake the research, the primary applicant is the student (UG, PGT, PGR) and supervisor is the co-applicant.

Venetsiana Fanioudaki PGT MSc Psychology (Conversion)
Email: 1621657@chester.ac.uk

3. Co-applicants

Notes: List the names of all researchers involved in the study. Include their appointment or position held and their qualifications

Dr. Kevin D. Hochard CPsychol
Lecturer in Psychology
Department of Psychology
Email: k.hochard@chester.ac.uk

4. Start and end dates of the study

Notes: The title should be a single sentence

Start date: 20/03/2018 (following project ethical approval)
End date: 25/09/2018

5. Is this project subject to external funding?

Notes: Please provide details of the funding body, grant application and PI.

N/A.

6. Briefly describe the purpose and rational of the research

Notes: (Maximum 300 words). In writing the rationale make sure that the research proposed is grounded in relevant literature, and the hypotheses emerge from recent research and are logically structured.
If this application is for a PGR/Staff funded project please attach any detailed research proposals as appropriate.

Suicidal ideation (SI) is undoubtedly a major risk factor for suicide (Jobes, 2006; WHO, 2018; Nock et al., 2008; Lee et al., 2010; Han, McKeon & Gfroerer, 2014; Normala et al., 2017; Klonsky, May & Saffer, 2016) which is a fundamental public health phenomenon as every year in all regions of the world nearly one million individuals end their own lives (WHO, 2018). There are multiple pathways which are correlated to SI, with anxiety and stress disorders, depression (Mihandoost, 2013; Normala et al., 2017; Ibrahim, Amit & Suen, 2014; Rohtash & Hardeep, 2008; O'Neil Rodriguez & Kendall, 2014) and insomnia (Nadorff, Nazem & Fiske, 2011; Ford & Kamerow, 1989; Lee et al., 2010; Ribeiro et al., 2012; Richardson et al., 2017; McCall et al., 2010; Wong, Brower & Zucker, 2011) significantly increasing the odds of suicidal thoughts.

Empirical evidence has suggested the effectiveness of ACT in all the aforementioned disorders (Blackledge & Hayes, 2006; Roemer, Orsillo & Salters-Pedneault, 2008; Swain,

Hancock, Hainsworth & Bowman, 2013; Hayes, Pistorello & Biglan, 2008; Branstetter, Wilson, Hildebrant & Mutch, 2004; Hayes et al., 2006; Landy, Schneider & Arch, 2015) which lead to SI and a growing body of evidence supports the effectiveness of ACT on suicidal symptoms, such as self-harm and depression (Murrell, Al-Jabari, Moyer, Novamo & Connally, 2014) as well as on SI (Ducasse et al., 2014; Luoma & Villatte, 2012; Walser et al., 2015). However, the literature is limited, and more research is needed given that ACT has been suggested as a promising treatment for individuals with SI and high risk for suicidality (Luoma & Villatte, 2012; Ducasse et al., 2014) and as a preventative intervention in altering suicidal thoughts and symptoms (Hayes et al., 2008).
There are some important benefits in this study. By examining the relationship between ACT variables and SI as well as between stress, anxiety, depression, insomnia and SI, then appropriate interventions using the resulting ACT components can be designed and implemented in order to reduce SI symptoms and its progression to suicidal attempts and suicide.

Aims and/or Hypotheses of the research:

The main purpose of this study is to examine the interaction between ACT variables and anxiety symptoms in predicting suicidal ideation.

Hypothesis 1) Individuals with high levels in anxiety, stress and depression have higher risk for SI.

Hypothesis 2) Individuals with high levels in insomnia have higher risk for SI.

Hypothesis 3) ACT components will moderate the relationship between mental disorders and SI.

7a. Describe the methods and procedures of the study

Notes: (Maximum 500 words) Attach any relevant material (questionnaires, supporting information etc.) as appendices and summarise them briefly here (e.g. Cognitive Failures Questionnaire: a standardised self-report measure on the frequency of everyday cognitive slips). Do not merely list the names of measures and/or their acronyms. Include information about any interventions, interview schedules, duration, order and frequency of assessments. It should be clear exactly what will happen to participants. If this is a media based study describe and list materials include links and sampling procedure.

Procedure: An on-line cross-sectional survey consisting of psychometric questionnaires (see Appendix D) will be conducted to gather data from general population and explore the relationship between ACT variables and SI. Following informed consent, participants will complete the following questionnaires;
Sleep Condition Indicator (SCI): An 8-item scale which evaluates insomnia disorder in everyday clinical practice (Espie et al., 2014).
Disturbing Dream and Nightmare Severity Index (DDNSI) is a 5 item scale evaluating nightmare symptom severity (Krakow et al., 2006).
Depression Anxiety Stress scale(DASS21): A questionnaire consisting of 21 items which includes 4 scales designed to measure the psychological state of depression, anxiety and stress (DASS21; Antony, Bieling, Cox, Enns & Swinson, 1998).

Depression Severity Index—Suicide Subscale: A 4-item self-report questionnaire which measures the frequency and intensity of suicide ideation and impulses in the past 2 weeks (DSISS; Joiner, Pfaff & Acres, 2002).
Acceptance and Action Questionnaire- II (AAQ-II): A 7-item scale which assesses acceptance, experiential avoidance, and psychological inflexibility (Bond et al., 2011).
CompACT: a 23-item general measure of psychological flexibility and ACT processes (Francis, Dawson & Golijani-Moghaddam, 2016).
Hyperarousal Scale: A 26-item self-report questionnaire which measures behaviors that involve cortical arousal, think about feelings, intense response to unexpected stimuli and tendencies to introspect (Pavlova et al., 2001).

Data collection will commence at the University of Chester via Psychology Research participation system (RPS) after the approval of the Research Ethics Committee. At the same time, participants are going to be recruited via social media (e.g. facebook, twitter, Instagram). Varied sources are going to be used in order to recruit a large number of participants and thus, maximize the data collection. At the end of the questionnaire, written debrief will be given to the participants which will provide them with information of support organizations.

7b. Provide details of your contingency plan

Notes: Please briefly describe your contingency plan. (100 words)

We are going to recruit participants from multiple online sources in order to maximize the data collection and thus, eliminate the potential of collecting insufficient data.

8. Provide details of the previous experience of the procedures by the person conducting the study.

Notes: Say who will be undertaking the procedures involved and what training and/or experience they have. If supervision is necessary, indicate who will provide it.

The researcher who will undertake the procedures involved in the study is a current MSc student of the Conversion Course in Psychology at the University of Chester. The researcher has experience of undertaking psychometric studies, since she has already completed a MSc in Health Psychology and has also published a psychometric study using general population as sample. Supervision is going to be held by Dr Kevin Hochard who is member of the staff at the University of Chester and has published several psychometric studies.

9. Describe the ethical issues raised by this study and discuss the measures taken to address them.

Notes: Describe any discomfort or inconvenience that participants may experience. Include information about procedures that for some people could be physically stressful or might impact on the safety of participants, e.g. interviews, probing questions, noise levels, visual stimuli, equipment; or that for some people could be psychologically stressful, e.g. mood induction procedures, tasks with high failure rate, please include your distress protocol. Discuss any issues of anonymity and confidentiality as they relate to your study, refer to ethics handbook and guidance notes at the end of the form. If animal based include ethical issues relating to observation.

It is of high significance to explore the effect and potential harm of participating in suicide research. Empirical evidence has shown that participation in studies where individuals are extensively asked about suicidal ideation or behavior and psychiatric conditions (Mathias et al., 2012; Smith, Poindexter, & Cukrowicz, 2010; Gould et al., 2005) as well as in online suicide research programs (Gibson, Boden, Benson, & Brand, 2014) has no negative effects on the participants. Instead, participation in such non-treatment studies has been found to be beneficial for the participants who are at greater risk of suicide attempt, reporting experiencing reduction in suicidal ideation levels and no increased distress. Thus, related studies when conducted ethically can be safe and beneficial for suicidal participants (Wong, Kwok, Michel, & Wong, 2017). Therefore, participation in the current study is not expected to affect adversely the participants. However, psychometric questionnaires associated with the psychological state of depression, anxiety and stress might cause a feeling of distress to the participants and a need for support (Gibson et al., 2014). In addition, Gibson et al. (2014) indicated that anonymous experiences regarding suicidality provoked hopes for recovery and had therapeutic benefits and suggested that it is important to ensure participants' anonymity and vulnerable participants' support. Thus, in order to reduce or prevent potential distress, consent will be obtained from participants following full briefing on content of the study. Debriefing information will recap the rationale of the study and provide contact information for sources of support. The information sheets will clearly inform the participants that their participation in this study will be anonymous, that at any time, anyone will have the right to withdraw from the study and that all instruments used are non-diagnostic. Finally, the information sheets will include the researcher's and supervisor's contact information for any questions regarding the questionnaires in addition to the contact details for local charities and support groups.

10. Describe the participants of the study.

Notes: Describe the groups of participants that will be recruited and the principal eligibility criteria and ineligibility criteria. Make clear how many participants you plan to recruit into the study in total.

The participants of this study will be individuals aged over 16, since they will be able to consent for themselves (Consent & Participant Information Sheet Preparation Guidance, 2014).

The estimated sample size is 300 participants. The inclusion criteria are, people aged over 16 and people who speak English fluently in order to be able to read and complete the questionnaire. There are no exclusion criteria. Participants will self-select into the study.

11. Describe the participant recruitment procedures for the study.

Notes: Gives details of how potential participants will be identified or recruited, please list any social media platforms that you will use and the message. Include all other advertising materials (posters, emails, letters, verbal script etc.) as appendices and refer to them as appropriate. Describe any screening examinations. If it serves to explain the procedures better, include as an appendix a flow chart and refer to it.

The sampling method of the study will be convenience sample. An on-line cross-sectional survey consisting of psychometric questionnaires will be advertised at the psychology department of the University of Chester site RPS and via social media (e.g. facebook, Instagram, twitter) in order to recruit the participants (See Appendix F).

12. Describe the procedures to obtain informed consent

*Notes: Describe when consent will be obtained. If consent is from **adult participants**, give details of who will take consent and how it will be done. If you plan to seek informed consent from **vulnerable groups** (e.g. people with learning difficulties, victims of crime), say how you will ensure that consent is voluntary and fully informed.*
*If you are recruiting **children or young adults** (aged under 18 years) specify the age-range of participants and describe the arrangements for seeking informed consent from a person with parental responsibility. If you intend to provide children under 16 with information about the study and seek agreement, outline how this process will vary according to their age and level of understanding.*
How long will you allow potential participants to decide whether or not to take part? What arrangements have been made for people who might not adequately understand verbal explanations or written information given in English, or who have special communication needs?
If you are not obtaining consent, explain why not.

Once participants access the first page of the survey, an information sheet will be provided to them giving information about the rationale of the study. Subsequently, the consent form on the next page will include a question asking whether participants agree or disagree to participate in the study. There is no time limit during this process. If the participants accept to take part, they will be taken to the following page where data collection will get started. Participants who will disagree to take part, they will be driven to a "thank you" message and the study will end. Participants will be able to withdraw at any time during the study by closing their browser window. Upon the submission of the questionnaires, participants will no longer be able to withdraw their data since all of them will be anonymous and their identification will be impossible.

13. Will consent be written?

Yes ☒ No ☐

*Notes: If **yes**, include a consent form as an appendix. If **no**, describe and justify an alternative procedure (verbal, electronic etc.) in the space below.*
Guidance on how to draft Participant Information sheet and Consent form can be found on PS6001 Moodle space and in the Handbook.

See Appendix C.

14. Describe the information given to participants. Indicate if and why any information on procedures or purpose of the study will be withheld.

Notes: Include an Information Sheet that sets out the purpose of the study and what will be required of the participant as appendices and refer to it as appropriate. If any information is to be withheld, justify this decision. More than one Information Sheet may be necessary.

Participants will be informed about the purpose of the study, i.e. it is a study which seeks to examine the interaction between ACT variables and anxiety symptoms in predicting suicidal ideation (See Appendix B). The information sheets will clearly inform the participants that their participation in this study will be anonymous; that at any time, anyone will have the right to withdraw from the study and that all instruments used are non-diagnostic. They will be also informed that upon the completion of the experiment they will receive their debrief (See Appendix E). Finally, the information sheets will include

the researcher's and supervisor's contact information for any questions regarding the questionnaires as well as contact information for support groups and organizations.

15. Indicate if any personally identifiable information is to be made available beyond the research team. (eg: a report to an organisation)

Notes: If so, indicate to whom and describe how confidentiality and anonymity will be maintained at all stages.

We are not collecting personal information of the participants and all the accessible information will not be available beyond the research team.

16. Describe any payments, expenses or other benefits and inducements offered to participants.

Notes: Give details. If it is monetary say how much, how it will be paid and on what basis is the amount determined. Indicate RPS credits.

The study will offer 2 RPS credits to the UOC participants (based on Chester tariff of 1 credit = 15minutes). No payments, expenses or other benefits are going to be offered to the rest of the participants.

17. Describe the information about the investigation given to participants at the end of the study.

Notes: Give details of debriefings, ways of alleviating any distress that might be caused by the study and ways of dealing with any clinical problem that may arise relating to the focus of the study.

No deception is involved in the present study. Information provided on conclusion of the study will closely mirror provided in the info sheet at the beginning of the study. In order to reduce or prevent potential distress, consent will be obtained following briefing information. Debriefing information will re-iterate the rationale of the study along with contact details for support services.

18. Describe data security arrangements for during and after the study.

Notes: Digital data stored on a computer requires compliance with the Data Protection Act; indicate if you have discussed this with your supervisor and describe any special circumstances that have been identified from that discussion. Say who will have access to participants' personal data and for how long personal data will be stored or accessed after the study has ended.

We are going to collect the data via BOS and subsequently store them on a secure server. The data will be anonymous and accessible only to the researcher and the supervisor by a security password known only to them. Data will be anonymised on collection. Raw data will be stored on password protected computers and be stored for minimum of five years following any publication of the data gathered.

SIGNATURES OF THE RESEARCH TEAM

Notes: The primary applicant and all co-applicants must sign and date the form. Scanned or electronic signatures are acceptable.

V. Fanioudaki
K. Hochard
09/03/2018

ETHICS COMMITTEE DATE Click here to enter a date.

☐ **ACCEPTABLE**

You may now commence data collection subject to approval from any relevant external agencies.

CHAIRS COMMENTS

☐ **Read and review all reviewers comments**

DATA COLLECTION IS NOT PERMISSABLE UNDER THE FOLLOWING 3 CONDITIONS. Please address the issues indicated.

☐ **ACCEPTABLE SUBJECT TO SUBMISSION OF AMENDMENT FORM**

UG and PG students should discuss any recommendations with their supervisors.

☐ **ACCEPTABLE SUBJECT TO CONDITIONS OF CHAIR**

Resubmit application for full review after addressing the issues described, ensuring you have indicated on the front page of the form that this is a resubmission.

☐ **REVISE AND RESUBMIT**

Resubmit application for full review ensuring you have indicated on the front page of the form that this is a resubmission

SIGNATURE: Click here to enter text.

Appendix A2

Research study: Exploring the relationship between ACT variables and suicidal ideation in individuals with anxiety symptoms.

You are being invited to take part in a research study for an MSc project exploring the relationship between anxiety symptoms and suicidal ideation (SI) as well as whether Acceptance and Commitment Therapy (ACT) variables are related to SI. Please take time to read the following information carefully and decide whether you would like to participate.

Who is undertaking this research study?

This study is being led by Venetsiana Fanioudaki and supervised by Dr Kevin Hochard at the University of Chester.

What do I have to do/ what will happen?

You will be asked to complete several psychometric questionnaires about stress and anxiety symptoms (e.g. how much you are worried about situations), potential sleep problems (e.g. how long does it take you to fall asleep), response to unexpected stimuli and information processing (e.g. how much you can control upsetting feelings and thoughts) and potential suicidal thinking.

Completing this survey should take you between 20 to 30 minutes depending on your reading speed. There are no trick questions in this study. There are no right or wrong answers. Questionnaires used are for the purpose of this research only. The questionnaire is not designed to provide you with diagnostic information. While we can provide a summary of the whole project once data completion is complete, we are unable to provide you with individual feedback the end of the study.

Do I have to take part?

Anyone who is above 16 years old can participate in the study. You have self-selected to take part by accessing this study. However, participation is strictly voluntary. You do not have to take part and you need not give a reason for this decision.

Should you wish to withdraw from the research before you have completed the study, you can withdraw by closing your browser window. Please be aware that once you have completed the study, your data will be anonymised to maintain confidentiality. Thus, it will not be possible for us to withdraw your responses as they will be pooled with all other responses, making them

unidentifiable. Should you wish to omit certain questions, you may do so. Partially collected data will be used in analyses where possible, but anonymity will be ensured.

Is there any potential harm from taking part in the study?

There are no directly harmful effects from taking part, but some of the questions may make you think about your experiences which may remind you of upsetting feelings. If you feel too triggered to continue and are struggling, remember you are free to withdraw and have no obligation to continue. We also recommend you consider making an appointment to see your GP to discuss these issues. Alternatively you can seek information, support and guidance from the following sources:

Papyrus: Telephone, text and email support staffed by trained professionals

Call: 0800 068 41 41

Email: pat@papyrus-uk.org

SMS: 07786 209697

Mind Info Line: information on all aspects of mental distress.

www.mind.org.uk

Samaritans: Confidential helpline

http://www.samaritans.org

Call UK: 116 123

Call US: 1-800-273-8255

Email: jo@samaritans.org

Call Australia: 1800 198 313

Email: support@thesamaritans.org.au

How will I benefit from the study?

Taking part in this study will allow you to voice potential anxiety symptoms or sleep disorders and how this can impact your thinking and coping strategies, e.g. suicidal ideation. We hope that results from this study will inform our understanding of how these behaviours relate to one another. UOC students will be awarded 2 Research participation credits for completion of this study.

Confidentiality

All information to be used in this study is strictly confidential and will only be used for the purposes of this research and subsequent publication. To reduce the risk of anyone seeing your responses you can exit the internet browser after you have sent your response. Your responses will be stored confidentially and securely. Please be aware that once you have completed the study, your data will be anonymised to maintain confidentiality, as such you will be unable to delete it after submission. Your responses will be pooled with the other responses, and your name or identifying information will not be asked at any point during this study.

Data will be stored in accordance with the Data Protection Act and University Research Policies for minimum of five years following any publication of the data gathered. Once analysis is complete, data will be kept on password protected computers, and will be confidentially destroyed in minimum of five years after study completion.

What will happen to the results of the study?

We will analyse the findings of the study in a series of linked analyses. The overall findings will help us to better understand how anxiety symptoms impact on individuals' mental health and coping skills and whether ACT variables are associated with suicidal ideation. If we find strong associations, then appropriate interventions using the resulting ACT components can be designed and implemented in order to reduce SI symptoms and its progression to suicidal attempts and suicide. Results may also be presented at scientific meetings and conferences. All participants will remain anonymous and individual responses will not be singled out. If you would like a summary of the results, please contact Venetsiana Fanioudaki or Dr Kevin Hochard (see below); please note that individual feedback cannot be shared as all data is anonymous.

Complaints procedure

If you wish to make a complaint about any aspect of this research, or how you have been treated as a participant, please address it to:

Professor R. Bramwell, Head of Department, Department of Psychology, University of Chester, Parkgate Road, Chester, CH1 4BJ.

Where can I get further information?

If you would like any further information about this research, please contact a member of the research team:

Venetsiana Fanioudaki Email: 1621657@chester.ac.uk

Dr Kevin Hochard Email: k.hochard@chester.ac.uk

Please keep a copy of this Information Page (print screen) for your future reference. Thank you for taking part in this research.

Appendix A3

Research study: Exploring the relationship between ACT variables and suicidal ideation in individuals with anxiety symptoms.

Please read the following statements and Click next the bottom of the page if you agree to take part in the research. If you have any concerns about doing so, please let contact a member of the research team:

Venetsiana Fanioudaki Email: 1621657@chester.ac.uk

Dr Kevin Hochard Email: k.hochard@chester.ac.uk

1) I have been informed of and understand the purpose of this study and its procedures and wish to participate.

2) I understand that in the debriefing session at the end of my participation I will have a further opportunity to ask any questions about this study.

3) I understand that the data collected for this study is strictly confidential and I will not be identifiable in any report of this study.

4) I further understand that I may withdraw from the study at any time without prejudice to me.

Click next to indicate you consent to take part in this study. If you do not wish to take part, please close your browser window.

Appendix A4

Research study: Exploring the relationship between ACT variables and suicidal ideation in individuals with anxiety symptoms.

We would like to thank you for taking the time to participate in our research study. You have now completed the study and are not required to provide any more data.

The information you have provided will help us to analyse the relationship between ACT variables and suicidal ideation in individuals with anxiety symptoms.

All the information you have provided will remain confidential and completely anonymous, and be handled in accordance with data protection legislation. Your participation in this study is greatly appreciated.

We ask that if possible, you avoid discussing the precise content of this research to any other potential participant as this may influence their responses and invalidate the data we could obtain from them. Thank you again for you time and co-operation.

We are unable to provide individual feedback on what your scores were, however, if you would like a written summary of the overall results, please do let us know and we would be happy to provide this for you once we have finished data collection.

Please feel free to contact us if you have any further questions about this study. Our contact details are provided at the bottom of this page. If you have any concerns about anything which

was raised for you in this research, please seek advice from your GP, you may also find the following sources of information helpful:

Papyrus: Telephone, text and email support staffed by trained professionals

Call: 0800 068 41 41

Email: pat@papyrus-uk.org

SMS: 07786 209697

Mind Info Line: information on all aspects of mental distress.

www.mind.org.uk

Samaritans: Confidential helpline

http://www.samaritans.org

Call UK: 116 123

Call US: 1-800-273-8255

Email: **jo@samaritans.org**

Call Australia: 1800 198 313

Email: support@thesamaritans.org.au

Once again, many thanks for participating in this research. We hope you enjoyed participating and have learnt useful techniques to improve your ability to interact in social situation.

If you would like any further information about this research, please contact a member of the research team:

Venetsiana Fanioudaki Email: 1621657@chester.ac.uk

Dr Kevin Hochard Email: k.hochard@chester.ac.uk

If after completing this survey you feel your mood is a little low, the extracts below will hopefully make you feel a bit better. 😊

- John Milton wrote ‘Paradise Lost’. Then his wife died and he wrote ‘Paradise Regained’.

- The appendix is a part of a book for which nobody ever found a use.

- If teeth are not cleaned, plague is the result.

- The wife of a duke is a dukky.

The following video may also help to improve your mood:

Sneezing baby panda: https://www.youtube.com/watch?v=FzRH3iTQPrk

Appendix A5

Please take part in our survey on suicidal behaviours and anxiety symptoms to help us understand their relationship.

The attached questionnaire is part of a MSc dissertation project conducted at the University of Chester which aims at investigating the relationship between Acceptance and Commitment Therapy (ACT) variables and suicidal ideation in individuals with anxiety symptoms.

It will be very helpful if you could spend 20 minutes of your time to complete the attached questionnaire. Your contribution will be extremely valuable, especially since there is currently limited research on the relationship between ACT and suicidal ideation. The findings of this research will be used to develop interventions in order to reduce SI symptoms and its progression to suicidal attempts and suicide. Thank you very much for your time, and help.

https://docs.google.com/forms/viewform

Hi, would you like to take part in my online survey for my MSc dissertation? The study aims at investigating the relationship between Acceptance and Commitment Therapy (ACT) variables and suicidal ideation in individuals with anxiety symptoms. It will be very helpful if you could spend 20 minutes of your time to complete the attached questionnaire. Everyone who is over 16 can take part in the study and all responses are kept anonymous. If you wish to take part, please use the link below. Thank you very much for your time, and help.

Appendix B: Application for ethical approval amendment form

University of Chester

UNIVERSITY OF CHESTER, DEPARTMENT OF PSYCHOLOGY

APPLICATION FOR ETHICAL APPROVAL AMENDMENT FORM

A) Applicant and personnel

B) Applicant: Click here to enter text.
C) Project title: Click here to enter text.
D) Applicant status: ☐ Staff → Go to Section B ☐PGR ☐Undergraduate ☒Postgraduate taught
E) Supervisor: *Dr Kevin D. Hochard*

F) Declaration

1. ☒ I have submitted an application for ethical approval to the Department of Psychology Ethics Committee and I am required to make the following amendments to my application.
   List the recommendations of the committee. *1. It might be worth thinking about including a positive mood-inducer at the end of the study. 2. Consider rewording the first sentence of the social media advert. 3. May want to revise 'up to five years' for data to be held perhaps 'minimum of five years'. 4. PIS: a) explanation of why participant has been chosen (minimum age), b) Right to not answer questions, c) how partially collected data will be used, d) Anonymity (how long data will be stored for), e) Dissemination information (need to state this is for an MSc project). 5. Include additional sources of support to cater for more nationalities.*
   Describe how you have addressed these requirements. ***1.****The following positive inducers have been included at the end of the study. If after completing this survey you feel your mood is a little low, the extracts below will hopefully make you feel a bit better. -John Milton wrote 'Paradise Lost'. Then his wife died and he wrote 'Paradise Regained'. - The appendix is a part of a book for which nobody ever found a use. - If teeth are not cleaned, plague is the result. - The wife of a duke is a dukky. The following video may also help to improve your mood: Sneezing baby panda: https://www.youtube.com/watch?v=FzRH3iTQPrk* ***2.*** *First sentence reworded: "Please take part in our survey on suicidal behaviours and anxiety symptoms to help us understand their relationship"* ***3.*** Sentence revised: *Raw data will be stored for minimum of 5 years following publication.* ***4****. The following amendments have been made. a) Anyone who is above 16 years old can participate in the study. b) Should you wish to omit certain questions, you may do so, c) Partially collected data will be used in analyses where possible, but anonymity will be ensured, d) Please be aware that once you have completed the study, your data will be anonymised to maintain confidentiality, as such you will be unable to delete it after submission. Data will be stored for minimum of five years following any publication of the data gathered, e) You are being invited to take part in a research study for an MSc project exploring the relationship between anxiety symptoms and suicidal ideation…* ***5.*** *US and Australian contact details for Samaritans Confidential Helpline*

have been included: Call US: 1-800-273-8255 Email: jo@samaritans.org Call Australia: 1800 198 313 Email: support@thesamaritans.org.au

2. ☐ I have submitted an application for ethical approval to the Department of Psychology Ethics Committee that was approved on Click here to enter a date.
   I wish the committee to consider the following amendments I would like to make to the research plan (attach the original approved application form) Click here to enter text.

☐ I am a member of staff. **Signed:** _____ **Date:** Click here to enter a date.
Print the amendment form on BLUE PAPER and submit to the Dept. Office
☒ I am an UG/PGT/PGR student. I have discussed any amendments with my project supervisor.
Print the amendment form on BLUE PAPER and submit to the Dept. Office

Signed: _____ **(Lead Applicant)** Date: 23/04/2018

Supervisor comments:
I have discussed the recommendations of the committee with the applicant and I am satisfied they have met the stated requirements./I support the amendments to the research plan. (delete as appropriate)
☐ Yes Sign and date the form ☐ No Comments: Click here to enter text.

Signed: _____ **(Supervisor)** **Date:** Click here to enter a date.

COMMITTEE COMMENTS:

☐ **ACCEPTABLE: You may now commence with data collection subject to approval from any relevant external agencies.**

DATA COLLECTION IS NOT PERMISSABLE UNDER THESE CONDITIONS

☐ **ACCEPTABLE SUBJECT TO SUBMISSION OF FURTHER AMENDMENT FORM.**

☐ **Acceptable subject to conditions listed by chair. Discuss conditions highlighted with supervisor and submit ethics application amendment form direct to office.**

☐ **Acceptable subject to conditions listed by chair: Submit ethics application amendment form direct to office.**

Signed: _____ Date: Click here to enter a date.

Appendix C: Questionnaires

Depression Anxiety Stress Questionnaire (DASS21)

DASS 21					
Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement. *The rating scale is as follows:* 0 Did not apply to me at all 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree, or a good part of time 3 Applied to me very much, or most of the time					
1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3

14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Acceptance and Action Questionnaire- II (AAQ-II)

Below you will find a list of statements. Please rate the truth of each statement

(for the agreed time period) in the column on the right, using the following scale:

1= never true

2=very seldom true

3= seldom true

4= sometimes true

5= frequently true

6= almost always true

7= always true

1.my painful experiences and memories make it	
difficult for me to live a life that I would value	
2. I'm afraid of my feelings	
3. I worry about not being able to control my worries and feelings	
4. my painful memories prevent me from having a fulfilling life	
5. emotions cause problems in my life	
6. it seems like most people are handling their lives better than I am	

7. worries get in the way of my success	

CompACT

Below you will find a list of statements. Please rate the truth of each statement (for the agreed time period) in the column on the right, using the following scale:

0 = Strongly disagree

1= Moderately disagree

2= Slightly disagree

3= Neither agree nor disagree

4= Slightly agree

5= Moderately agree

6= Strongly agree

1. I can identify the things that really matter to me in life and pursue them	0 1 2 3 4 5 6
2. One of my big goals is to be free from painful emotions	0 1 2 3 4 5 6
3. I rush through meaningful activities without being really attentive to them	0 1 2 3 4 5 6
4. I try to stay busy to keep thoughts or feelings from coming	0 1 2 3 4 5 6
5. I act in ways that are consistent with how I wish to live my life	0 1 2 3 4 5 6
6. I get so caught up in my thoughts that I am unable to do the things that I most want to do	0 1 2 3 4 5 6 0 1 2 3 4 5 6
7. I make choices based on what is important to me, even if it is stressful	0 1 2 3 4 5 6
8. I tell myself that I shouldn't have certain thoughts	0 1 2 3 4 5 6
9. I find it difficult to stay focused on what's happening in the present	0 1 2 3 4 5 6
10. I behave in line with my personal values	0 1 2 3 4 5 6
11. I go out of my way to avoid situations that might bring difficult thoughts, feelings, or sensations	0 1 2 3 4 5 6
12. Even when doing the things that matter to me, I find myself doing them without paying attention	0 1 2 3 4 5 6
13. I am willing to fully experience whatever thoughts, feelings and sensations come up for me, without trying to change or defend against them	0 1 2 3 4 5 6
14. I undertake things that are meaningful to me, even when I find it hard to do so	0 1 2 3 4 5 6
15. I work hard to keep out upsetting feelings	0 1 2 3 4 5 6
16. I do jobs or tasks automatically, without being aware of what I'm doing	0 1 2 3 4 5 6
17. I am able to follow my long terms plans including times when progress is slow	0 1 2 3 4 5 6
18. Even when something is important to me, I'll rarely do it if there is a chance it will upset me	0 1 2 3 4 5 6
19. It seems I am "running on automatic" without much awareness of what I'm doing	0 1 2 3 4 5 6
20. Thoughts are just thoughts – they don't control what I do	0 1 2 3 4 5 6
21. My values are really reflected in my behaviour	0 1 2 3 4 5 6

22. I can take thoughts and feelings as they come, without attempting to control or avoid them	0 1 2 3 4 5 6
23. I can keep going with something when it's important to me	0 1 2 3 4 5 6

Depressive Severity Index — Suicidality Subscale (DSISS)

Instructions: on this questionnaire are groups of statements. Please read all of the statements in a given group. Pick out and circle the one statement in each group that describes you best for the past two weeks. If several statements in a group seem to apply to you, pick the one with the higher number. Be sure to read all of the statements in each group before making your choice.

(A) Thoughts:

3 I always have thoughts of killing myself.

2 Most of the time I have thoughts of killing myself.

1 Sometimes I have thoughts of killing myself.

0 I do not have thoughts of killing myself.

(B) Plans:

3 I am having thoughts about suicide and have formulated a definite plan.

2 I am having thoughts about suicide and am considering possible ways of doing it.

1 I am having thoughts about suicide but have not formulated any plans.

0 I am not having thoughts about suicide.

(C) Control:

3 I am having thoughts about suicide but have little or no control over these thoughts.

2 I am having thoughts about suicide but have these thoughts somewhat under my control.

1 I am having thoughts about suicide but have these thoughts completely under my control.

0 I am not having thoughts about suicide.

(D) Impulsivity:

3 In all situations I have impulses to kill myself.

2 In most situations I have impulses to kill myself.

1 In some situations I have impulses to kill myself.

0 I am not having impulses to kill myself.

Sleep Condition Indicator (SCI)

Instructions: on this questionnaire please CIRCLE EACH ITEM AS IT BEST APPLIES TO YOU for the past one month.

Item	Score				
	4	3	2	1	0
Thinking about a typical night in the last month					
1. …how long does it take you to fall asleep?	0-15 min	16-30 min	31-45 min	46-60 min	>61min
2. …if you then wake up during the night…how long are you awake for in total? (add all the wakenings up)	0-15 min	16-30 min	31-45 min	46-60 min	>61min
3. …how many nights a week do you have a problem with your sleep?	0-15 min	16-30 min	31-45 min	46-60 min	>61min
4. …how would you rate your sleep quality?	Very good	Good	Average	Poor	Very poor
Thinking about the past month, to what extent has poor sleep…					
5. …affected your mood, energy or relationships?	Not at all	A little	Somewhat	Much	Very much
6. …affected your concetration, productivity or ability to stay awake	Not at all	A little	Somewhat	Much	Very much
7. …troubled you in general	Not at all	A little	Somewhat	Much	Very much
Finally…					
8. How long have you had a problem with your sleep?	I don't have a problem	1-2 mo	3-6mo	7-12mo	>1yr

Disturbing Dreams and Nightmare Severity Index (DDNSI)

1. **In the last week how many nights have you had nightmares?**

Answer: 0-7

2. **How many nightmares have you experienced in the last week?**
   Answer: 0-14 (if over 14, select 14)

3. **How often have your nightmares awoken you?**
   Answer: 0=Never, 1= Not often, 2= Sometimes, 3= Often, 4= Always

4. **How severe is your nightmare problem?**
   Answer: 0=No problem, 1= Minimal problem, 2= Mild problem, 3= Moderate problem, 4= Moderately severe problem, 5= Severe problem, 6= Very severe problem

5. **How intense are your nightmares?**
   Answer: 0=Not intense at all, 1= Minimal intensity, 2= Mild intensity, 3= Moderate intensity, 4= Moderately severe intensity, 5= Severe intensity, 6= Extremely severe intensity

Scoring

The scale is summed to produce an overall index of nightmare severity (range = 0-37). Scores above 10 are consistent with clinical levels of disturbing dreams and nightmares. Scores above 20 are generally consistent with a more severe nightmare disorder.